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MARKETING STRATEGIES AND ORGANISATIONAL CHARACTERISTICS OF BRITISH AND GERMAN MACHINE TOOL MANUFACTURERS

BY

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ABSTRACT

The aim of this study is to examine the differences and similarities in the approach to marketing of British and German companies in the machine tool industry. While the German machine tool industry is one of the most successful in the world the British industry is in decline and so, in addition, this research seeks to establish the factors that influence the success of German manufacturers and what lessons can be learnt from their success.

Interviews were conducted with 40 managers in British and German companies. However, difficulties experienced in obtaining data from German managers necessitated the inclusion of British-based subsidiaries of German machine tool manufacturers. This approach resulted in three distinct samples, small in size and with a bias towards larger, more successful German companies. In spite of the methodological weaknesses, the study provides a valuable insight into Anglo-German differences in a number of key areas.

The British manufacturers are found to adopt a short-term approach to their markets emphasising goals such as short-term profitability and survival. Their German competitors, meanwhile, pursue longer-term goals based on market share. Both the British and German manufacturers claim to pursue strategies based on product quality and reliability. German manufacturers, however, appear to be better at defining their target markets. In addition they are found to attach greater importance to the need for an advanced as well as flexible and responsive R & D capability. A commitment to new product development is evident in the 70% of German manufacturers that are selling products developed in the last ten years. This is matched by a premium pricing policy. British companies, however, are found to have less clearly define target markets, and although they appear to be investing more in R & D than their German counterparts a large proportion of them are selling products developed over twenty years ago. In organisational terms the overriding theme in the British companies interviewed is informality both in management style and planning and control systems. Whilst the German managers seem to prefer a more balanced approach to communications there is greater commitment to formal planning and control systems.

Over 75% of German companies, compared with less than 20% of the British companies, are rated as being successful such that successful organisations are found to display many of the same characteristics as German manufacturers. These companies appear to display a strong product orientation, although a high degree of customer orientation is also found in many of the same companies. Finally, the British subsidiaries of German manufacturers do not appear to resemble their German parents very closely and so the parent subsidiary relationship is questioned.

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1. "The Effectiveness of Organisations in Adapting to Environmental Change: A Study of the Machine Tool Industry in Great Britain and West Germany". Paper in the proceedings of Marketing Education Group Conference, in Glasgow, July 1989

2. "The Marketing Effectiveness of British and German Companies in the Machine Tool Industry". Paper presented at the European Marketing Academy Conference, in Dublin, Eire, May 1991

3. "Marketing Strategies and Organisational Characteristics of British and German Companies. Preliminary Findings of a Study of the Machine Tool Industry". Paper in the proceedings of the Marketing Education Group Conference, in Cardiff, July 1991

1.0 INTRODUCTION

1.1 Background

After 1992, the European Community will become a single market, opening up opportunities to manufacturing companies throughout the member states. This change has focussed attention on the effectiveness of organisations in the member states (eg. Friberg 1989, Gogel and Larréché 1989). Of particular interest is the manufacturing industry in Germany. Success in key areas has made Germany the world leader in the export of manufactured goods. In contrast to this, there has been a decline of manufacturing industries in Britain.

Reasons for these wide differences in industrial performance have been extensively debated over the years by economists and historians alike. The poor British performance has been blamed on an anti-industrial culture, poor labour policies and social factors such as education and business organisation, (eg. Wiener 1981, Barnett 1986, Bacon and Eltis 1976, Cairncross 1979, Freeman 1979, Alford 1988). Meanwhile the German success has been attributed to the so-called "Wirtschaftswunder" of the 1950's and 1960's and high levels of investment in both products and markets (eg. Braun 1990, Grosser 1974, Fröhlich 1989, Owen Smith 1983, Abelshauser 1983).

Throughout the 1980s there was much concern by both academics and practitioners as to what determines business success. Spawned by the popularist book "In Search of Excellence" by Peters and Waterman (1982) many researchers have sought to identify the characteristics displayed by successful companies (eg. Goldsmith and Clutterbuck 1985, Saunders and Wong 1985, Clifford and Cavanagh 1985, Hansen et al 1990, Hooley and Jobber 1986, Baker et al 1988, Doyle et al 1986, Lai et al 1992, Hedley 1990, Krüger 1989, Simon 1990, Rommel 1991).

There is a consensus within the literature that the adoption of a marketing orientation enables a company to achieve better performance (eg. Kotler 1991, Narver and Slater 1990, Webster 1988, Hooley et al 1990). There is also broad agreement that the failure of British companies to embrace marketing is a contributory factor to their poor performance (eg. Doyle 1987, Hooley et al 1984, Baker et al 1988, Turnbull and Cunningham 1981). Whilst much attention in recent years has been focussed on comparing British marketing capabilities with those of America and Japan (eg. Doyle, Saunders and Wong 1986, Kotler and Fahey 1982), few studies have been concerned with comparative investigations of British and German marketing capabilities and those that there are are only parts of studies of other issues (eg Sciberras and Payne 1985, Parkinson 1984). Considering that Germany is, economically, a great rival to Japan, this lack of Anglo-German comparisons forms a gap in marketing research.

The literature suggests that no studies have specifically undertaken a comparative investigation of the marketing strategies and organisational characteristics of British and German companies. This study aims, therefore, to go some way towards plugging that gap by examining the differences and similarities between companies in the two countries in these areas and to see what impact they have on performance.

1.2 Aims of this Research

The specific aims of this research are threefold:

1. to establish the differences and similarities in the approach to marketing of British and German companies

2. to determine common organisational characteristics of British and German companies

3. to assess whether the successful marketing strategies of companies in one country could be adopted by those in the other.

1.3 Overview of the Research Methodology

In order to achieve the objectives of this research an empirical investigation of the machine tool industry in Britain and Germany has been undertaken. This industry was selected for investigation because of its strategic importance to the economies of both Britain and Germany. A

stratified random sample of manufacturers was drawn in both countries. However, difficulties were experienced in obtaining data from the German companies. The British subsidiaries of the German manufacturers were, therefore, contacted as it was anticipated that they would reflect the marketing strategies of their parent companies. Many of the subsidiaries were willing to put the researcher in contact with their German parents with the result that interviews were conducted with a number of German manufacturers.

Data for the study were finally obtained from personal interviews with senior managers in 16 British, 11 subsidiary and 13 German companies. A semi-structured questionnaire was used to collect information about the performance, marketing objectives, strategies and organisations of the participating companies. This approach was chosen in order to widen the scope of the data collected and to obtain valuable qualitative as well as quantitative information which would be comparable across companies. The inclusion of the subsidiaries in the analysis did, however, add a further dimension to the research as the relationship between them and their German parents could also be examined.

However, it is important to note that, given the difficulties in gaining access to German manufacturers and the approach subsequently adopted, there is a bias in the German sample towards larger more successful companies. The companies interviewed cannot, therefore, be seen to be representative of the machine tool industry as a whole.

However, given the lack of empirical research into the marketing strategies of British and German companies the view adopted by Simon (1990) a leading German Professor of Marketing is shared "What does representativeness mean if you know so little about the total?" (p. 3).

The sample data were analysed using chi-square tests and discriminant analysis. Finally a cluster analysis was performed in order to determine whether successful British companies display similar characteristics to their more successful German competitors. Because the methodology adopted resulted in three small samples, it should be recognised that not all the requirements for the statistical techniques employed have been met.

1.4 Organisation of the Thesis

All the key concepts to be considered in the course of this research are discussed in Chapter Two. Here a review is made of the literature on the marketing concept and there is a discussion as to how the adoption of a marketing orientation contributes to business success. The key components of a marketing strategy are presented along with the frameworks within which the analysis will be conducted. The empirical literature on successful organisations is reviewed and finally a series of propositions, to be tested in the course of the research, are developed.

Then in Chapter Three the reasons for conducting an Anglo-German comparison are explored and an overview of the economic performance of the two countries is presented. The reasons for studying the machine tool industry are discussed and a full review of this key industrial sector in both Britain and Germany is given.

Chapter Four examines in more detail the rationale behind comparative management research and discusses the approach adopted in this research. This is followed by a discussion of the external factors such as the education and financial systems in the two countries which are believed to influence each nation's success. The remainder of the chapter concentrates on the company-level factors which attempt to explain the differences in performance of British and German companies. Finally, following a review of empirical research comparing British and German organisations, a series of propositions are formulated relating to marketing strategy and organisational characteristics.

The first part of Chapter Five presents the methodology adopted to test the propositions developed in Chapters Two and Four. This is followed by a discussion of the sample selection, sampling errors and the data collection methods used. The second part concentrates on the analysis of the data obtained from the British and German machine tool manufacturers and outlines the basic principles of the statistical techniques used.

Chapter Six highlights, firstly, the characteristics of the sample companies. Given the difficulties of analysing small samples the results of a discriminant analysis to reclassify the subsidiaries is presented. Following on from this the differences between the three samples are examined using the frameworks outlined in Chapter Two. Finally the propositions relating to the marketing strategies and organisational characteristics of British and German companies are explored.

Chapter Seven presents the findings of the comparison of successful and less successful companies. Firstly, the methodology for this part of the research is discussed and then, using the frameworks outlined in Chapter Two the key differences in the marketing strategies and organisational characteristics of successful and less successful machine tool manufacturers are determined. Finally the propositions relating to successful organisations are examined.

Having already determined the key differences between British and German and successful and less successful companies Chapter Eight sets out to analyse whether successful British companies display similar characteristics to successful German manufacturers. It also considers the subsidiary companies and to what extent they resemble the characteristics of the German parents. This is achieved by conducting a cluster analysis and profiling the companies in the six emergent clusters.

The final chapter draws conclusions based on the analyses performed. It considers the implications of this research for both academics and practitioners and finally considers areas of further Anglo-German management research.

2.0 THEORETICAL FRAMEWORK

2.1 Introduction

This chapter explores the marketing concept and how the adoption of a marketing orientation contributes to business success. It considers the key components of marketing strategy and reviews the literature discussing the characteristics of successful companies as well as a resume of criteria used to measure success. Finally the hypotheses to be tested in the course of this research are developed.

2.2 The Marketing Concept

Much has been written on the subject of the marketing concept. Since its popularity as a business function dating back to the 1950s marketing has been defined, redefined, criticised and defended. It is necessary, therefore, to consider the key components of the concept.

There is widespread agreement in the literature on four of the key components of the marketing concept (eg. Borch 1957, McKitterick 1957, Felton 1961, Levitt 1962, King 1963, McGee and Spiro 1988, Kotler 1991).

1. Market Focus

Marketing oriented companies recognise that they cannot serve all potential customers, therefore, they segment the market and target specific customer groups.

2. Customer Orientation

A customer orientation requires that a company defines the customer needs from the point of view of the customer. To do so a company must research those needs and then develop products to satisfy those needs.

O'Shaughnessy (1988) argues that this is the most important factor of the marketing concept, although there is disagreement in the literature as to exactly what constitutes a customer orientation. Houston (1986), for example, takes a soft view that all decisions about the offering to the customer must be based on an understanding of what the customer wants. O'Shaughnessy (1988) takes a harder line and states that companies should not only find out what customers want but "go all out to provide the customer with what s/he wants" (p. 8). Simmonds (1982), however, has argued that a customer orientation can lead to myopia and stifle product innovation.

3. Coordinated Marketing

This means two things. Firstly the marketing functions within an organisation need to be integrated from the customer's point of view and secondly, and more importantly, marketing must coordinate its activities with the rest of the organisation. As Drucker (1973) points out:

"Marketing is so basic that it cannot be considered a separate function (i.e., a separate skill or work) within the business, on a par with others such as manufacturing or

personnel. Marketing requires separate work, and a distinct group of activities. But it is, first, a central dimension of the entire business. It is the whole business seen from the point of view of its final result, that is from the customer's point of view. Concern and responsibility for marketing must, therefore, permeate all areas of the enterprise" (p. 63).

This expounds the notion that marketing is more than just a function within a company, but is a "unifying concept with all the functions of the company oriented and guided by the market and its requirements" (Roberts 1960, p. 20). This viewed is shared by many others including McKitterick 1957, Levitt 1962, Kotler 1965, King 1963, Brown 1987 and Ames 1970.

4. Profitability

The main purpose of the marketing concept is to help companies achieve their goals and in most business organisations the main goal is profitability. Some researchers take the view that profitability is an objective of a marketing-oriented company (Narver and Slater 1990), whereas others believe that profits are the result of satisfying customer needs well (Kotler 1991, Kohli and Jaworski 1990).

Although the marketing concept is a simple and common sense approach to business and has wide appeal it is not without its critics (eg. Houston 1986, Ames 1970, Kaldor 1971,

O'Shaughnessy 1988, Hayes and Abernathy 1980, Hanan 1974, Baker 1989, Day and Wensley 1983, Bell and Emory 1971, Luck 1969).

Many are convinced that the concept places too much emphasis on the customer and that in practice a marketing orientation has been diluted to become simply a customer orientation. Critics argue that customers do not always know what they want and even if they do "they often define those needs in terms of existing products, processes, markets and prices" (Hayes and Abernathy 1980, p. 71). Marketing is not just about current needs, but also about anticipating future customer needs so that innovation is encouraged and not stifled.

A further criticism of the marketing concept is that it does not take into account the capabilities of the organisation, although O'Shaughnessy (1988) argues that the aim of meeting customer requirements pre-supposes that the appropriate organisational capabilities exist. This links in with a weakness identified by Day and Wensley (1988) that the marketing concept fails to address the issue of the need for companies to develop a sustainable competitive advantage. The authors are further concerned that the marketing concept as espoused by Kotler and others pays little attention to competitive issues. Although Kotler (1991) notes:

"The marketing concept holds that the key to achieving organisational goals consists in determining the needs and

wants of target markets and delivering the desired satisfactions more effectively and efficiently than competitors" (p. 16),

his treatment of the competition is only cursory.

Whilst few really disagree with the basic principles underlying the concept of marketing, a major concern lies in the inability of companies to successfully implement them. One reason for this weakness is that managers are concentrating on the 'trappings' of marketing rather than the 'substance'. More organisations are introducing marketing departments and market support systems, but as Ames (1970) quite rightly argues, having a marketing department is "no guarantee of marketing success" (p. 94). Many researchers share this view, but argue that this lack of marketing orientation is largely due to a limited understanding of the concept by managers (King 1963, Webster 1988, Bennett and Cooper 1979) and that what is required is "a fundamental shift in thinking and attitude throughout the company so that everyone in every functional area places paramount importance on being responsive to market needs" (Ames 1970 p. 94).

Day and Wensley (1988) talk about a paradigm shift within marketing theory from the simplistic view of the marketing concept which considers customer satisfaction, choice, the marketing mix and the notion of exchange. Recognition of the shortcomings in the concept have led the authors to suggest

a role for marketing in the 1980s which includes "the need to incorporate the relationships of the marketing function with constituencies both inside and outside the firm" (p. 21).

The above discussion of the limitations of the marketing concept suggests that as a business approach marketing encompasses more than the four factors outlined earlier and should be broadened to include:

5. Competitor Orientation

Day and Wensley (1988) contend that adopting a competitor orientation "views customers as an ultimate "prize" gained at the expense of rivals in many ways other than by simply offering a better match of products to customer needs" (p. 23).

6. Innovation

Innovation and marketing are closely linked as Drucker (1973) observes "because its purpose is to create a customer, the business enterprise has two - and only these two - basic functions: marketing and innovation. Marketing and innovation produce results" (p. 60). The importance of innovation and product development skills to achieve a successful marketing orientation have been confirmed in empirical studies (eg Doyle et al 1986).

7. Long-term Business Perspective

As a result of an increasingly dynamic environment Weitz and Wensley (1988) argue that the orientation of marketing management is changing from an annual marketing plan to the need to consider long-term strategic issues. The formulation of a marketing strategy is concerned with the development of a long-term perspective and the creation of a long-term competitive advantage on the basis of the relationships developed between the company, its customers and intermediaries. Other academics have already argued that a long-term business perspective is implicit in a marketing orientation (Houston 1986, Kohli and Jaworski 1990).

8. Marketing as a Business Philosophy

Many writers are convinced that marketing is a way of doing business that has the interests of the customer at heart throughout the whole organisation (McKitterick 1957, Drucker 1973, Ames 1970). Bradley (1986) points out, though, that if marketing is defined as a business philosophy it should be noticeable in the organisational, strategic and managerial output.

2.3 Business Orientations

The marketing concept contrasts with other business philosophies. Given that there is empirical evidence to support the view that few industrial organisations adopt a

marketing approach it is interesting to consider alternative approaches to business (Ames 1970).

a) Production Concept

A production orientation holds the view that success can best be achieved through the design and manufacture of optimum quality products at an optimum price. Taking this approach it is the production department that determines what products the company will sell. The major difference between the two orientations is "the degree to which the firm bases its decisions on knowledge about the wants of its customers and takes into consideration the impact of major decisions throughout the company upon the relationship between the firm and its customers" (O'Shaughnessy 1988, p. 9). The adoption of a production orientation may not be detrimental to a company because it may, by chance, be producing the products the customer wants. Companies, however, cannot rely on this orientation for long-term success as they are likely to find that they are "trying to sell what too few people seek and competing against products having far greater appeal " (O'Shaughnessy 1988, p. 10).

b) Product Concept

This approach to business states that success is achieved by manufacturing the best quality, most reliable products. Management, therefore, focus on designing and developing good products and pursue strategies based on continuous product improvement and innovation. This is an orientation frequently observed in industrial organisations and as Ames

(1970) has observed " the product concept in many industrial companies is actually the origin and chief reason for success of the enterprise" (p. 97), therefore, it is hard for management to understand the benefits of a marketing orientation. A particular danger with this approach to business was identified by Levitt (1960) who observed that companies striving for continuous product improvement can get so involved with the product that they suffer from "marketing myopia".

c) Sales Orientation

Companies following this business philosophy believe that success is best achieved through aggressive selling and promotion. The aim of management in such companies is to "sell what they can make rather than make what they can sell" (Kotler 1991 p. 15).

d) Financial Orientation

In adopting this business philosophy managers hold the view that success is achieved by using resources and assets to optimize profits and return on capital employed. This approach takes a very short-term view of business and is an orientation which is being increasingly observed in companies, particularly in Britain (eg. Doyle 1987).

2.4 Marketing Effectiveness

There is widespread agreement that companies adopting a marketing orientation to their business achieve better

performance (eg. Kotler 1991, Narver and Slater 1990, Webster 1988, Hooley et al 1990). However, very few companies have successfully implemented the concept. In an attempt to overcome such difficulties Kotler (1977) devised a marketing effectiveness audit. Companies would then be able to assess their own level of marketing orientation. In line with the principles of the marketing concept Kotler (1977) identified five key activities associated with marketing effectiveness.

1. Customer Philosophy

Analysing marketing opportunities and selecting the best markets to serve and offering "superior value to the chosen customers in terms of their needs and wants" (p. 72)

2. Integrated Organisation

The organisation's structure should reflect a marketing philosophy with all departments cooperating effectively.

3. Adequate Marketing Information

Availability of up-to-date quality information on customer perceptions and buying habits. Information on sales and profit potential of market segments, customers and products.

4. Strategic Orientation

The design of a profitable strategy based on its business philosophy, organisation and information resources. Formal annual and long-term marketing plans. The interests of the customer should be important throughout the organisation.

The strategy should be clear and communicated throughout the organisation.

5. Operational Efficiency

Systems should be in place which allow the company to react quickly to changes in the marketplace. Constant monitoring of plans to allow for corrective action.

The notion of a marketing effectiveness audit is very valuable, however, this one developed by Kotler is somewhat simplistic and is designed to be self-administered therefore, there is a potential for bias. The importance of marketing effectiveness has been confirmed by other researchers (eg. Narver and Slater 1990, Hooley et al 1990, Birley et al 1987, Payne 1988).

2.5 Marketing Strategy

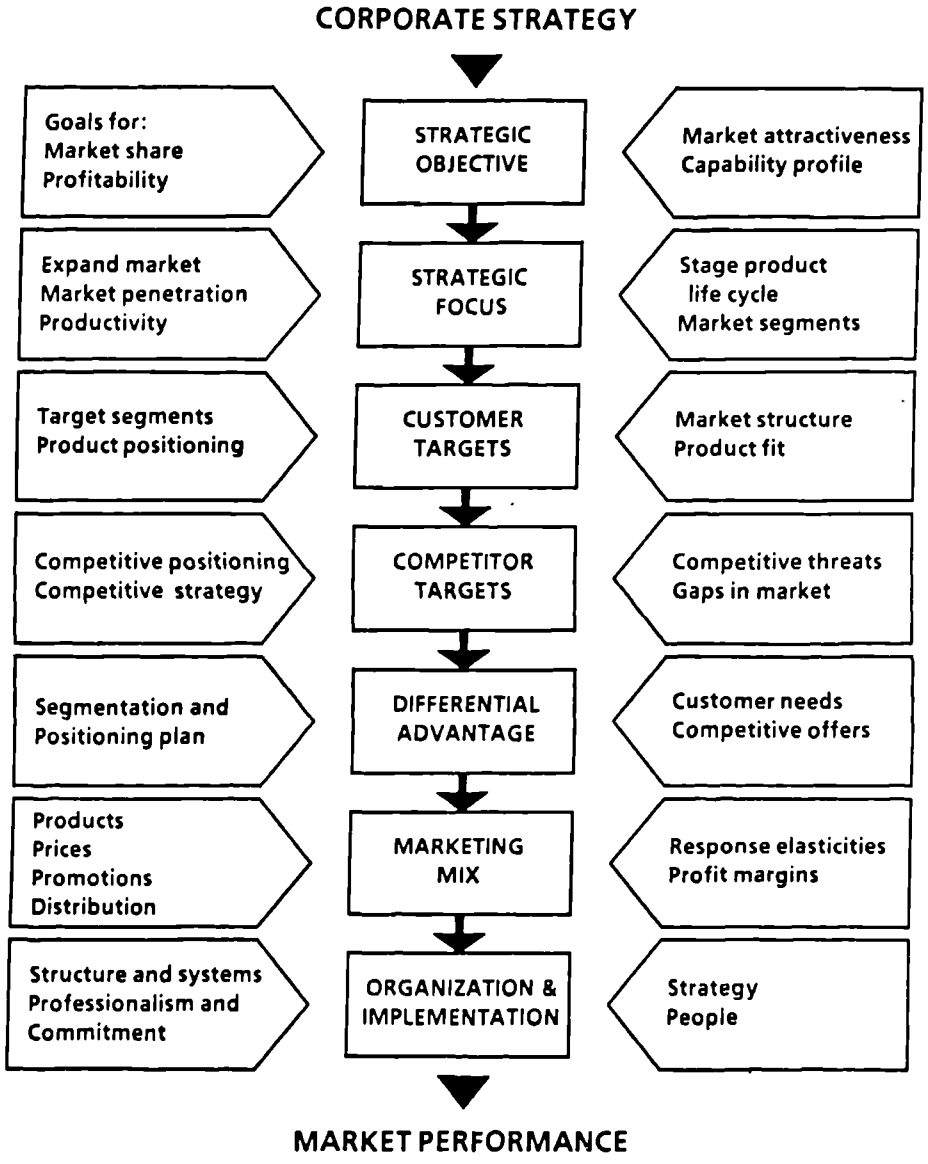
Figure 2.1 summarises the accepted view of the components of a marketing strategy and has already been applied effectively to cross-national studies comparing marketing approaches in Britain, Japan and the United States (eg. Doyle et al 1986, Doyle et al 1989). The key components of this framework are described below.

1. Strategic Objectives

Based on a thorough analysis of its internal and external environment a company develops a set of strategic objectives

which defines the desired market share, sales volume and profitability for its products.

Figure 2.1 Components of Marketing Strategy



2. Strategic Focus

Strategy is the way through which a company seeks to achieve its objectives. Writers like Porter (1980) argue that there are only three strategic alternatives for success - overall cost leadership, differentiation or focus. In reality there

are a wide range of potential strategies open to a company, but the environment in which it operates and its own distinctive competences are likely to limit the choice of alternatives. Options exist for market growth, market penetration, product development, diversification.

3. Customer Targets

It is widely accepted that a company cannot serve the whole market, therefore, to be successful a company must identify key market segments in which it can compete effectively. To be successful a company must know its customer targets and why the customers buy their products instead of those of the competition. As O'Shaughnessy (1988) writes "both these items of information *are a necessary condition for* successful marketing and the absence of appropriate knowledge of either can be a sufficient condition for market failure" (p. 63).

4. Competitor Targets

In order to develop successful strategies for the future Porter (1980) emphasises the importance of having a thorough understanding of competitors and their strategies. Companies, therefore, need to continuously monitor the market not only for competitive action but also to keep pace with environmental change. This enables companies to identify new opportunities and open new 'strategic windows' (Abell 1978).

5. Differential Advantage

Porter (1985) states that "competitive advantage is at the heart of a firm's performance in competitive markets" (p. xv) and that success in a market depends on the ability of a company to meet the needs of the customer as effectively as or better than the competition. Differential advantage can come from a number of sources (see Weitz and Wensley 1988) and determine not only in which markets a company should compete but also how to position itself within the chosen segments.

6. Marketing Mix

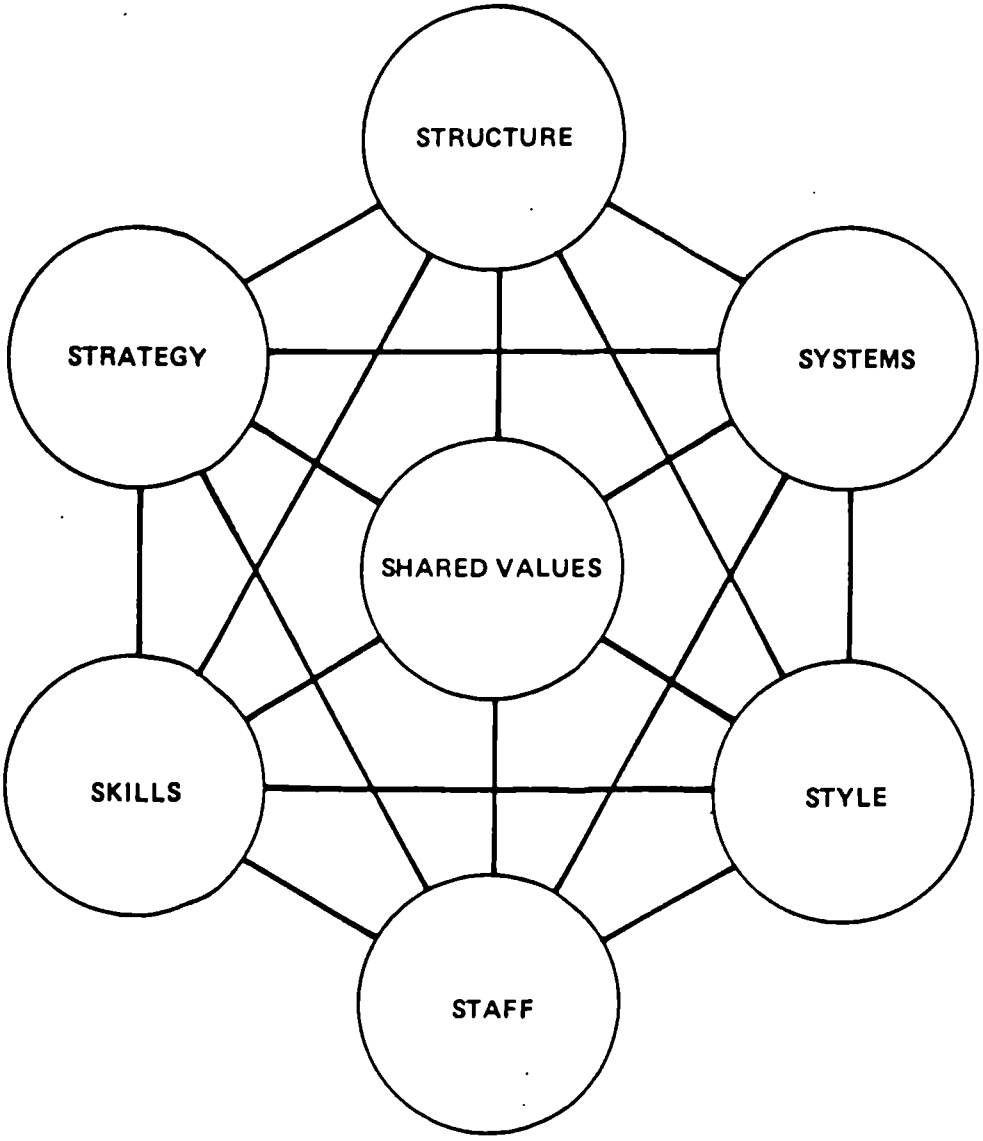
The appropriate combination of product, price, distribution and promotion needs to be determined so that a company can meet its objectives. Research has suggested that certain mix elements have a bigger impact on market share performance than others. In a study of the PIMS database Buzzell and Wiersema (1981) found that companies increasing their market share typically place greater emphasis than their rivals on new product development, product quality and expenditure on marketing activities. Conversely companies using price as a key mix element did not experience significant increases in market share.

7. Organisation and Implementation

Even the best strategy can fail if it is not implemented correctly (Kotler 1991). Pascale and Athos (1981) and Peters and Waterman (1982) all argue that strategic planning is not

enough when operating in dynamic environments and that strategy is but one of seven factors which are present in top performing companies. The factors have been combined to form the McKinsey 7s framework consisting of three "hardware" elements - strategy, structure and systems - and four "software" variables - style, staff, skills and shared values (Figure 2.2).

Figure 2.2 The McKinsey 7s Framework



2.6 The McKinsey 7S Framework

A study of 37 well-run American organisations conducted by McKinsey & Company found seven key variables that impact the long-term success of a company. Pascale and Athos (1981) contend that the strategy follows structure paradigm fails in this respect because it ignores the human element of an organisation. It is the "software" elements which impact the ability and speed of a company to adapt to a dynamic environment. As Kotler (1991) points out "the key to survival is the organisation's willingness to examine the changing environment and to adopt appropriate new goals and behaviours. Adaptive organisations monitor the environment and attempt through flexible planning to maintain a strategic fit with the environment" (p. 58).

In recent years many studies have used this framework to analyse not only marketing success and effectiveness (eg. Saunders and Wong 1985, Doyle et al 1986, Payne 1988), but also to assess new product development (eg. Johne and Snelson 1988). Whilst the model is a useful analytical tool it has been criticised for its simplicity. It is a closed model which does not consider the interdependency of the seven variables nor does it consider the position occupied by a company relative to its markets and competitors (Krüger 1989, Nagel 1988). Peters and Waterman (1982) do, however, acknowledge the importance of a good understanding of the external environment to success, but have not built it into the framework.

2.7 Measures of Success

Success, as defined in the Oxford English Dictionary, is a "favourable outcome, accomplishment of what was aimed at". Therefore, whatever a company may have as an objective (eg survival, growth or profitability), if it achieves that goal it could be considered to be successful. However, in the wide body of management literature dealing with the characteristics of successful companies success has come to mean more than simply meeting objectives. Companies are rated as successful only when they have met some predetermined performance criteria.

There are three measures of business success that are commonly used:

1. Financial measures
2. Marketing measures
3. Personnel measures

Financial measures are the most widely used in particular profitability because classical economic theory assumes that business organisations have profitability as a key objective. It is frequently measured in relative terms i.e. relative to the competition or to the industry average (for examples see Hooley and Jobber 1986, Saunders and Wong 1985, Goldsmith and Clutterbuck 1985, Peters and Waterman 1982). One problem with using profitability is the potential for creative accounting which can account for large swings in profits from one year to another. Also by reducing

expenditure on key activities such as R & D and marketing it is relatively easy for a company to maximise short-term profits such that only past performance is measured and not future potential. An additional limitation in cross national studies is the legislative and reporting differences between countries (Doyle 1991). Other financial measures include return on investment, growth in sales and assets (eg. Buzzell and Gale 1987), although these are subject to the same weaknesses as profitability.

Empirical studies of successful companies have concentrated largely on financial criteria which could be seen to encourage companies to adopt a short-term perspective to their business as they strive to be labelled 'excellent'. Researchers have addressed this criticism by incorporating marketing measures such as market share (eg. Doyle et al 1989). This approach also has its limitations as it is unclear as to what share of what market is being measured and whether different sectors are comparable. Some researchers have tried to overcome the shortcomings of such retrospective performance criteria by including measures for brand awareness and customer assessment of the product offering (eg. Hansen et al 1990). This attempts to measure success in such a way that it also predicts the future, however it can be highly subjective.

Personnel measures such as employee productivity, employment growth and sales per employee have also been used to measure performance (eg. Taylor and Paul 1986, Norburn and Birley

1988). This too has limitations as companies can improve financial performance by reducing manpower. Lyonski and Pecotich (1990) take the view that, because so many different variables could be used, measures of organisational performance are methodologically unsound.

All the traditional measures of business performance, therefore, have weaknesses such that Day and Wensley (1988) conclude that there is no suitable measure of competitive performance. It is also clear that, over the years, success and its measurement have been simplified, whilst in reality it is a multidimensional concept. This has led Doyle (1991), at one time an exponent of excellence studies, to conclude that "excellence is a very dangerous concept" (p. 9). A more robust measure of performance would, therefore, be to combine a number of criteria and methods of assessment. This, however, would be costly both in terms of cost and time and furthermore, assumes that all measures are equally weighted.

There are weaknesses not only in the performance measures themselves, but also in the sources of information. Published financial data is not always objective given different accounting conventions, particularly in different countries. In addition some companies are reluctant to disclose such information. Much empirical research relies on a self assessment of performance because it is easy to gain such information in the course of collecting other data and because companies have a good knowledge of their own

position. However, such an approach is open to bias, although a number of researchers have found that self assessment of performance is consistent with published information (eg. Dess and Robinson 1984 and Venkatraman and Rumanujam 1986) and is comparable with that of peer group and expert evaluation (eg. Speed and Smith 1991).

Expert assessment is more objective than self assessment and has been used effectively by Venkatraman and Rumanujam (1986) and Speed and Smith (1991). It is likely to be more objective than peer group assessment, although it is more expensive and time consuming.

Peer group evaluation can also be biassed "since a respondent may have reason to exaggerate the performance of a peer" (Saunders et al 1991). Although use of this method of assessment by Doyle et al (1989) and Speed and Smith (1991) has proved to be robust when validated with self assessment. In addition this approach has been shown to be effective when compared with the more traditional financial performance measures (Venkatraman and Rumanujam 1986).

2.8 In Search of Excellence

The birth of the current obsession in management literature with excellent companies took place in the early 1980s with the influential book "In Search of Excellence" by Peters and Waterman (1982). The two authors adopted a popularist approach to assessing the characteristics of top performing

American companies. Taking Chandler's (1962) idea that structure follows strategy as a starting point, Peters and Waterman (1982) found that there was more to an organisation than just the strategy it pursued and the structure employed.

The researchers selected 43 companies according to six performance measures relating to "growth and long-term wealth creation" and "measures of return on capital and sales " (p. 22). They were all said to be in the top half of their industry on at least four of the performance measures over a twenty year period or rated highly on a measure of innovativeness as rated by industry experts.

Peters and Waterman (1982) identified eight characteristics which were present in the top performers. As these features have formed the basis for hypotheses in later research, or have come in for much criticism it is interesting to highlight them. They are:

Bias for Action - the emphasis is on action, reflected in a willingness to experiment which in turn encourages innovation. Systems are kept simple and open yet flexible to encourage ad hoc teams to solve specific problems. The outcome is an organisation which can adapt quickly to change.

Close to the Customer - excellent companies are driven by a customer orientation rather than by technology or cost. The

strategies pursued are typically based on service, quality and reliability. They segment their markets and tailor products to satisfy the needs of the customer groups served. They not only talk about customer satisfaction but also measure it. Customers are also closely involved in the new product development process.

Autonomy - innovation and individual entrepreneurship are encouraged. As a result there is a high degree of tolerance for failure in order not to stifle innovation. Informal and regular communications are emphasised, but control is tight.

Productivity through People - successful companies demonstrate a clear people orientation not just in terms of employees but of customers too.

Hands-on Value Driven - a well defined set of guiding values is communicated throughout the organisation.

Stick to the Knitting - excellent companies stick to what they know best and expand their business on the basis of their key skills

Simple Form, Lean Staff - flexibility is maintained through the use of simple structures organised around products and markets. Response to change is quick.

Simultaneous loose-tight Properties - central direction is provided on key values and controls are tight, but autonomy, entrepreneurship and innovation are encouraged.

Although 'In Search of Excellence' does shed some light onto management practices in large successful companies it has come in for a lot of criticism not least because of the unscientific nature of the research (eg. Carroll 1983). Only successful companies were examined so there is no way of knowing how much of the eight attributes were possessed by less successful companies. The authors attempt to justify this weakness by saying "we felt we had plenty of insight into underachievement through our combined 24 years in the consulting business" (Peters and Waterman 1982, p. 13). In spite of these clear weaknesses the authors still attempt to generalise about excellent and less successful companies.

The authors do, however, admit that the book was written primarily for practitioners so the anecdotal style adds to its appeal. However, the book can be misleading, giving managers the impression that if they pay attention to the 7S's and work on the eight attributes their companies will also be among the top performers. Carroll (1983) addresses the issue of the vulnerability of the top performing companies suggesting that many of them would not achieve their excellence status in a different time period. Recently the studies have come under renewed criticism because many of the "excellent" companies have fallen from grace whilst seemingly still possessing the same characteristics that

made them successful, such that eight years after the study only six are still successful (Pascale 1990).

The biggest single critic of "In Search of Excellence" is Carroll (1983) and although most of his comments are justified, he is perhaps over reacting by stating that "in the final analysis, management and management literature were not moved further toward excellence by this book and may even have been needlessly delayed" (p. 88). It is important to acknowledge that this excellence study has spawned much new research into what makes an organisation successful and, although it has inherent weaknesses, the academic community has had a new set of hypotheses with which to work.

2.9 Characteristics of Successful Companies

Since the publication of 'In Search of Excellence' there have been many attempts to replicate the study throughout the world and to further our understanding of what characterises a successful company (eg. Goldsmith and Clutterbuck 1985, Saunders and Wong 1985, Clifford and Cavanagh 1985, Hansen et al 1990, Hooley and Jobber 1986, Baker et al 1988, Doyle et al 1986, Lai et al 1992, Hedley 1990, Krüger 1989, Rommel 1991). The subsequent discussion seeks to establish the characteristics distinguishing successful companies from their poorer-performing rivals through the use of the frameworks and models discussed above.

2.9.1 Strategy

1. Strategic Objectives

Taking the findings of Peters and Waterman (1982) as hypotheses, Saunders and Wong (1985) studied excellence in marketing in 15 British and 15 Japanese companies. They found that successful companies formulated goals based on market share and growth. This finding is supported by Baker et al (1988) who also observed the importance attached, by top performers, to the development of long-term goals and strategies.

2. Strategic Focus

Both the Doyle et al (1986) and Saunders and Wong (1985) studies found that successful companies focussed on market expansion as a means of gaining business, whilst Baker et al (1988) observed that, in their sample, winning companies pursued strategies which added value to the product. An emphasis on product quality and performance as a way of obtaining business was in evidence in the successful companies studied by Hooley and Jobber (1986) and Clifford and Cavanagh (1985).

3. Customer Targets

Almost all writers on top performing companies have concluded that a key element of their success is the adoption of a customer orientation (eg. Kotler 1991, Levitt 1960, Webster 1988, Hooley and Jobber 1986, Peters and

Waterman 1982, Clifford and Cavanagh 1985, Goldsmith and Clutterbuck, Hooley and Lynch 1985, Steiner and Solem 1988, Hansen et al 1990). This customer orientation has been evident through a number of factors. For example successful companies understand the importance of market segmentation based on customer needs and target the segments with the best potential. They use market research to identify customer needs and continuously monitor the marketplace in order to identify opportunities and maintain a strategic fit with the environment.

4. Competitor Targets

Top performing companies were found to be very knowledgeable about their markets and competitors and developed flexible organisations in order to respond quickly to change (eg. Doyle et al 1986).

5. Differential Advantage

There is widespread agreement that in order to be successful a company needs to develop a sustainable competitive advantage (eg. Porter 1985, Hall 1980, Day and Wensley 1988). In his study Hall (1980) found that top performers typically developed a competitive advantage in one of two areas - low cost or product differentiation. It is interesting to note that most other studies of successful companies found that advantage was created largely through differentiation either in terms of the product or service (eg Doyle et al 1986, Saunders and Wong 1985, Buzzell and Wiersema 1981, Shapiro 1979), through market specialisation

(eg. Steiner and Solem 1988) or by creating value for the customer in some way (eg. Hansen et al 1990, Baker et al 1989). Simon (1990), however, in a study of 39 successful medium-sized German organisations, found that Germany's "Hidden Champions" created advantage not just in one area but "in product quality, closeness to customer and service, a triad hard to beat" (p. 6).

6. Marketing Mix

Product - both product and market considerations are important to successful companies and this is clearly reflected in the importance attached to innovation. Doyle et al (1986) noted, in particular, that top performers are quick to adopt new technologies and gain advantage by adding value to the product offering. Winning companies are prepared to invest in new product development to ensure long-term performance (Hooley and Lynch 1985). In a study of 40 top-performing German organisations Rommel (1991) found that successful companies had a limited product range. More specifically he observed that in machinery companies product breadth showed a negative correlation with success. In addition Rommel (1991) found that at 4.4% of sales successful German companies spent less on R & D than their less successful counterparts (6.8% of sales). He argues, however, that "because the spending is concentrated, the amount spent on individual product groups is actually greater than that of less successful companies in the machinery industry" (p. 48).

In his sample Hall (1980) observes that less successful companies were all found to be high cost producers with undifferentiated products often with below average quality.

Price - The importance given to product differentiation is reflected in the pricing strategies of successful companies. They command premium prices by adding value to their products and do not see price as a means of improving market performance (Simon 1990).

Distribution - there appears to be no significant difference between successful and less successful companies.

Promotion - Doyle et al (1986) observed that successful companies tend to have a higher expenditure on promotion

7. Organisation and Implementation

This is discussed in more detail in subsequent sections, but it is important to note that size has not been found to be a key distinguishing characteristic of successful companies as Hooley and Jobber (1986) note "while size has the undoubted advantages of scale and experience, size alone cannot guarantee success in today's rapidly changing and dynamic market environments" (p. 94).

The above discussion concentrated on the characteristics of successful companies. Hall (1980) postulates, however, that the reason why companies are successful is because they pursue their chosen strategy as a deliberate policy. A view shared by Doyle et al (1986) and Hooley and Jobber (1986)

who found that top performers are more aggressive and innovative in their approach to customers and markets.

2.9.2 Structure

The importance of strategy to a company's success cannot be denied, however, Peters and Waterman (1982) have made researchers rethink the ability of an organisation to implement the chosen strategy successfully. Baker et al (1988) found, in their two studies, that a company's ability to implement strategic plans and to integrate its different functional areas are critical to success. A finding echoed by Krüger (1989) although he observes, in his study of German organisations, that structure was less influential in contributing to success. However, the wrong structure in poorer performing companies was found to have a high degree of influence.

Researchers looking at the characteristics of top performing companies are largely in agreement that successful organisations adopt simple, flexible structures which integrate the different functional areas (eg. Goldsmith and Clutterbuck 1985, Hooley and Lynch 1985, Baker et al 1988, Clifford and Cavanagh 1985). More specifically Doyle et al (1986) and Rommel (1991) note that successful companies tend to structure their organisation around their products and markets. The key feature of successful companies is their flexible structure which allows them to respond quickly to environmental change.

2.9.3 Systems

Whilst the structure is the skeleton of an organisation its systems are its flesh and blood. Again there is a consensus amongst researchers as to the type of systems present in winning companies. The emphasis again is on simple and flexible systems which involve formal and informal monitoring of the marketplace (eg. Doyle et al 1986 Clifford and Cavanagh 1985). As Hooley and Lynch (1985) observe in top performing organisations "planning systems are such as to heighten their responsiveness to environmental factors" (p. 72). The two researchers also note that successful companies adopt a much more proactive stance to planning, with emphasis on long-term considerations. A finding confirmed by the Baker et al (1988) studies in which more successful companies were found to be involved in strategic planning that covered longer time spans than in less successful companies. The superior planning systems adopted by top performers, argue Hooley and Lynch (1985), help them to better identify opportunities and take advantage of them. Saunders and Wong (1985), however, whilst finding that successful companies were marginally more planning-oriented, found that the difference in approach to less successful companies was not significant.

Not only are successful companies found, by and large, to be planning-oriented but they also demonstrate an understanding of the importance of the appropriate financial controls

(Hooley and Lynch 1985) and implement tight systems to monitor performance (Goldsmith and Clutterbuck 1985).

Successful companies tend to demonstrate a clear understanding of the need for good communications. What is interesting is that, given the importance of planning and tight controls, the emphasis in communications should be on informal systems (eg. Doyle et al 1986, Clifford and Cavanagh 1985, Hooley and Lynch 1985). However, informal communications afford speed and flexibility which enables successful companies to respond quickly to environmental change.

Less successful companies, on the other hand, tend to be less flexible, adopt more rigid organisation structures and be less open in their communications (eg Doyle et al 1986, Saunders and Wong 1985).

2.9.4 Staff and Skills

The ability of an organisation to implement its chosen strategy and to develop a competitive advantage depends largely on the skills of its people. Successful companies have been shown to have a high level of commitment to their employees (eg. Doyle et al 1986, Saunders and Wong 1985) although the inclusion of Japanese companies in an excellence study does distort the picture. Whilst many studies have concluded that there is little difference in age, background and education of managers in successful and

less successful companies there is agreement that top performers do pursue their distinctive competences based on the skills possessed. It is a case of doing the right things rather than doing things right.

2.9.5 Style and Shared Values

The Peters and Waterman (1982) study concludes that the most important factor determining success is the sense of value shared throughout the organisation - this is more important even than strategy. Whilst some researchers acknowledge the existence and importance of a set of guiding values in a winning company none of them see it as the overriding factor influencing success (eg. Clifford and Cavanagh 1985, Goldsmith and Clutterbuck 1985). In fact Saunders and Wong (1985) found that in terms of shared values there was no significant difference between top performing and less successful companies.

More important in successful companies appears to be the encouragement given to autonomy and innovation (eg. Saunders and Wong 1985, Goldsmith and Clutterbuck 1985, Clifford and Cavanagh 1985). In many successful companies managers are encouraged to experiment in terms of both product and market development without failure being punished (Clifford and Cavanagh 1985).

2.10 Weaknesses of Studies into Successful Companies

In spite of the severe criticisms levelled at the Peters and Waterman (1982) excellent study many subsequent studies have failed to address the weaknesses. The work by Goldsmith and Clutterbuck (1985) and Clifford and Cavanagh (1985) adopts a popularist approach and still draw heavily on secondary sources for information whilst failing to adequately cover less successful companies. The criteria used to measure success still attract comment mainly because empirical studies concentrate on only one set of variables and their effect on performance and do not consider the relative importance of each (Baker et al 1988). The classification of companies as successful or less successful is still largely subjective (eg. Saunders and Wong 1985).

Baker et al (1988) are also critical of success studies that only examine growth industries because it is difficult to determine whether companies have been successful as a result of their actions or in spite of them. In addition they take the view that studies investigating a single industry do not give a broad enough overview of success characteristics.

2.11 Conclusions

The above discussion highlights the importance of strategy to success and largely contradicts the findings of Peters and Waterman (1982). It also shows that success is a multidimensional concept that is difficult to measure. In

spite of these difficulties, empirical work in the area has given a good insight into the characteristics most associated with success. It is important to note, however, that the difference between successful and less successful companies is becoming less pronounced and that distinguishing features are "much more subtle than earlier commentators would have us believe" (Baker et al 1988 p. 84). The British researchers contend that this is because more managers are becoming familiar with the excellence literature and are trying to implement the activities associated with success.

2.12 Propositions to be Tested in the Research

The above discussion suggests a number of propositions about successful companies which are to be tested in the course of this research.

H1 Successful companies display a higher level of marketing orientation (Narver and Slater 1990, Webster 1988, Hooley et al 1990).

In order to test this proposition the following hypotheses have been developed with regard to the characteristics possessed by successful companies:

HA1 Successful companies formulate both long- and short-term objectives emphasising market share and

growth (eg. Saunders and Wong 1985, Baker et al 1988).

HA2 Successful companies pursue more aggressive strategies based on product differentiation (eg. Baker et al 1988, Hooley and Jobber 1986).

HA3 Successful companies segment their markets and identify key targets to serve (eg. Hooley and Jobber 1986, Steiner and Solem 1988, Hansen et al 1990).

HA4 Successful companies continuously have a good understanding of competitive activity in their key markets (eg. Doyle et al 1986).

HA5 Successful companies do not compete on the basis of price but command premium prices for differentiated products (eg. Doyle et al 1986, Hall 1980, Simon 1990).

HA6 Successful companies have a high degree of organisational flexibility enabling them to adapt quickly to changes in the marketplace (eg. Goldsmith and Clutterbuck 1985, Clifford and Cavanagh 1985).

HA7 Successful companies operate superior planning systems spanning both the short and long-term (eg. Hooley and Lynch 1985, Baker et al 1988).

HA8 Successful companies stress the importance of informal and regular communications whilst operating tight control systems (eg. Goldsmith and Clutterbuck 1985, Doyle et al 1986).

3.0 ECONOMIC PERFORMANCE OF BRITAIN AND GERMANY

3.1 Introduction

This chapter reviews the current economic performance of Britain and Germany and their overall international competitiveness. Comparisons are made not only between these two countries but also with Japan and the United States, in order to show the strong position held by Germany in world trade. In addition the machine tool industry is reviewed and the performance between the two countries compared.

3.2 Reasons for Comparing Britain and Germany

Before reviewing the economic performance of Britain and Germany it is important to consider why these two countries were selected for the research.

Similarities in Industry Structure

Britain and Germany are at a similar stage of industrial development. Prais (1981a) has observed broad similarities in plant size and industry concentration levels in a number of key sectors including the machine tool industry. More specifically, in a study of the structure and performance of manufacturing industries in Britain and Germany, Panic (1976) noted that "the two [countries] are very similar in a number of important respects, for example, size, endowment of natural resources, the stage of industrial development reached and dependence on foreign trade" (p. viii). However,

in spite of these similarities, Germany's economic performance has consistently exceeded that of Britain (Panic 1976, NEDO 1987), thus making a comparison of the marketing strategies of companies in the two countries particularly interesting.

Single European Market

With the introduction of the Single European Market in 1992 much attention is being focussed on the effectiveness of organisations in the member states to meet such a challenge (eg. Gogel and Larréché 1989, Friberg 1989). Companies in both countries will be facing similar opportunities and threats within Europe, therefore, a comparative study of Britain and Germany is valuable in order to assess the strategies most likely to be successful in the new business environment.

Gap in the Marketing Literature

Much comparative research in recent years has focussed on the marketing capabilities of British, American and Japanese organisations (eg. Doyle et al 1986, Kotler and Fahey 1982, Wright et al 1989). Whilst much concern has been voiced about the Japanese success in Europe and the US much less notice appears to have been taken of the German's success. Considering that Germany occupies such a prominent position in world trade this gap in the marketing literature is all the more striking.

Few studies have considered marketing activities in British and German organisations and then only as part of a study of other issues (eg Sciberras and Payne 1985, Parkinson 1984, Reid and Schlegelmilch 1990). The literature suggests, therefore, that no studies have specifically undertaken a comparative investigation of the marketing strategies and organisational characteristics of British and German companies. This study aims to go some way towards filling that gap by examining the differences and similarities between companies in the two countries with regard to these issues and to see what impact they have on performance.

Cultural Differences

Comparative studies with Japanese companies have considered what British companies can learn from their Japanese counterparts. However, it must be noted that the cultural differences between those two countries are great. Whilst cultural differences do exist between Britain and Germany they may not be so pronounced such that any lessons to be learned from the German success might be more easily transferable.

3.3 Germany's Economic Success

Throughout much of this century Germany has been one of the most successful economies in the world in spite of losing two world wars. Their economic performance since the Second World War has been particularly remarkable and the factors which have contributed to this success are discussed below.

Post War Recovery

It is important to realise that it is a myth that most of Germany's industrial base was destroyed in the war. Grosser (1974) observed that in fact only 15 - 20% of engineering plant was destroyed. During the war Germany kept her war machine equipped with the latest technology such that it has been estimated that industrial assets in Germany in 1945 exceeded those of 1939 and indeed that "investments in German industry during the war very likely exceeded the war damage" (Braun 1990 p. 146).

Following the war, it was the intention of the allies that Germany should only play a limited role in international markets. A programme aimed at dismantling German industry was, therefore, implemented. However, problems encountered in reassembling the plant in other countries reduced the anticipated benefit to countries like Britain, not least because "dismantled plants were often replaced by modern ones which put German industry in a favourable competitive position" (Braun 1990 p. 149). Following defeat Germany was no longer allowed to produce arms and was free, therefore, to concentrate on the manufacture of capital goods which it successfully exported to underdeveloped countries. At the same time, to alleviate any perceived threats, Britain was diverting valuable funds to rearmament and away from the manufacture of capital goods (Giersch 1970).

Marshall Aid also played a part in the recovery of the Germany economy because, as well as providing food supplies, it allowed German businessmen to visit the United States to study the latest developments in technology and management. The rationale behind the Marshall Aid was that Germany's economic situation could best be helped through reconstruction rather than destruction (Braun 1990). As a result the impact of Marshall Aid, and hence the Americans part in the revival of Germany, has been widely debated (eg. Abelshauser 1983, Klemm and Trittel 1987, Stolper et al 1967, Grosser 1974). In addition the German mark was undervalued which helped increase both domestic and foreign demand. As demand rose, costs fell and profits increased allowing companies to invest heavily in new plant and equipment and new product development (Owen Smith 1983).

The recovery by German industry in the post war years was quite remarkable. In 1948 industrial output stood at half that achieved in 1938, but from 1950 to 1960 the average growth in GNP in Germany was 7.6%. This compared with a growth rate in Britain of just 2.6%. Only the growth rate in Japan was higher than that of Germany (Giersch 1970).

Dependency on Exports

In the post war years Germany had a limited supply of natural resources, therefore, was heavily dependent on exports for economic success. A relatively stable economic environment in post-war Germany coupled with political stability helped Germany develop into one of the world's

leading industrial nations in spite of high wages and production costs (Owen Smith 1983).

Investment in Product Quality

In highly competitive world markets Germany has traditionally competed by offering well-designed, high quality, reliable products, backed up by a good after-sales service. However, Germany could only compete on this basis by investing heavily in R & D and by developing first-rate engineering skills at every level in the organisation. Therefore, an environment was created which was conducive to investment in both R & D and plant and machinery (Fröhlich 1989).

German industry, however, has not been without its problems. The oil crises of the 1970s followed by world recession inevitably had an impact on the German economy. Whilst it was better placed than other European countries, in particular Britain, to weather the storm, a number of weaknesses within German manufacturing organisations were uncovered. Customers were increasingly demanding value-added products and Germany, too, was slow to adapt to these changing customer requirements. As a consequence they lost out heavily to the Japanese, who were able to offer technologically advanced products at relatively low cost (Sciberras and Payne 1986). At the same time Germany faced increased difficulties as a result of a revalued Deutsch Mark which meant that export goods were more expensive (Braun 1990). In spite of these difficulties the German

economy remained relatively stable. Germany faced further difficulties in the early 1980s as economic growth rates declined and unemployment increased. Export levels remained high, however, and despite problems Germany was still outperforming most of her European partners (see Table 3.4). When compared with Japan, Germany's performance is also good and, although Japan poses a major threat to German industry, it appears to be meeting the Japanese competition more effectively than her other European partners.

3.4 Britain's Economic Decline

Britain's economic fortunes have, undisputedly, been in decline for some time. One debate between economists and historians is when this decline began. Many observers have concluded that current economic performance is not the result of the post-war rejuvenation of the German and Japanese industries and economies, but that it started as long ago as the last century (Eg. Wiener 1981, Barnett 1986, Gamble 1985). Britain was the first nation to become industrialised which brought with it a lot of power, but little competition. As more nations became industrialised competition increased, but Britain had become complacent so failed to respond to these new pressures. It is important, therefore, to note that in the post-war years British industry was already in a weak position which would have a bearing on the development of the economy in subsequent years. The ensuing discussion highlights that, whilst their is disagreement as to the precise cause of Britain's poor

economic performance, there is no single cause, but a combination of factors contributing to the decline.

Short-term Perspective

Bacon and Eltis (1976) have argued that Britain's poor performance is a direct result of the funding of public expenditure through higher taxation. This resulted in demands for higher wages which in turn squeezed company profits and the amount available to invest in industry. In addition, this process is said to have directed the good people into the public sector and the City away from industry and engineering (Wiener 1981).

Cairncross (1979) had some sympathy with this view when he wrote that "there is a vicious circle of declining market share, declining profits and investment, and declining competitive power, which must aggravate the weakness of British industry" (p. 11). This has led to the criticism that British companies adopt a too short-term perspective of their business. Freeman observed back in 1979 that "short-term accountancy considerations still frequently dominated management decision-making in British firms, rather than the long-term strategic emphasis on product design and development, process innovation, marketing organisation and technical service so characteristic of much Japanese industrial planning and our more successful European and American competitors" (p. 71). There is still evidence in the late 1980s that this approach is being pursued (eg. Doyle et al 1986).

Lack of Investment

This short-term perspective has also had an impact on the level of investment in manufacturing industries (Freeman 1979 and Pavitt 1980). It was noted that, although British companies invested quite heavily in industry in the 1950s and 1960s, the efforts were channelled into sectors such as aircraft and military-related industries with relatively low expenditure in mechanical engineering. As a result there was little investment in new production equipment or in designing and developing the technologically advanced products being increasingly demanded by the customers. Consequently Britain's share of world manufacturing output declined from 9.6% in 1960 to 5.8% in 1975 (Blackaby 1979).

Table 3.1 Investment as a Percentage of GDP 1960 - 1990

Year	Britain	Germany	USA	Japan
1961	17.3	27.2	17.9	36.9
1965	18.5	28.5	20.2	32.0
1970	18.8	27.6	17.9	39.1
1975	19.7	19.7	17.0	32.8
1980	17.9	23.4	18.9	32.2
1985	16.9	19.6	18.7	28.0
1986	16.7	19.5	18.1	27.7
1987	17.5	19.3	17.8	28.4
1988	19.2	20.0	17.4	30.4
1989	19.6	21.3	17.1	31.5
1990	19.1	N/A	16.0	33.0

Source: I.M.F. (1991), International Financial Statistics Yearbook

Table 3.1 shows that, although fairly consistent, the percentage of GDP invested in the early 1960s and 1970s by Britain was lower than in Germany, Japan and the United States. Given that GDP in Britain was well below that of the

other three countries it is clear that, in real terms, investment in industry in Britain fell well short of her competitors.

Industrial decline in Britain reached its lowest point in the early 1980s as large numbers of companies went into liquidation and the remaining organisations cut back sharply on already low levels of investment. Since then, though, the economy has started to recover with output and export levels stabilising and in some instances increasing (see Table 3.4). Whilst GDP growth rates matched and sometimes exceeded those of Germany, Britain's starting point was much lower and she is, therefore, still behind her key competitors (see Table 3.6).

Poor Rate of Adaption to Change

Britain is not only criticised for investing too little in industry but also for the slow speed at which her companies adapt to new technologies (Pavitt 1980). This failure to adopt new technology quickly has meant that British producers are frequently laggards in the marketplace, allowing the more advanced competitors to gain a significant first mover advantage. However, Stout (1979) argues that Britain may be less successful not because her manufacturers are not using the latest technology but because "equivalent industries in rival economies have taken advantage of the existence of a technological gap to grow unusually fast" (p. 178). As a result Britain has few top class manufacturing organisations and surprisingly few moderately successful

companies (Goldsmith and Clutterbuck 1984). However, there is also evidence which suggests that, even when British companies have employed technology on a par with her competitors, they still achieve lower productivity levels (Ray 1972).

The slow pace of adaptation to change has also been observed in other business functions. Alford (1988) has detected a general slowness of management in British companies to adapt to new challenges both in marketing and technical innovation. He concludes that "major shortcomings in company organisation and management have been at the centre of Britain's unsatisfactory economic performance" (p. 66).

Shortage of Skilled Labour

A shortage of good engineers is often cited as a contributory factor to Britain's economic decline. The gap in technical innovation highlighted earlier becomes more apparent when one considers that in the view of Freeman (1979) "perhaps the biggest single long-term contrast between British and German industry has been in the number and quality of engineers deployed in all management functions in manufacturing" (p. 69). But it is education in general which some observers claim has fallen behind the standards of her competitors (Alford 1988, Barnett 1986). A low emphasis on vocational training and the provision of skills means that workers in British factories are technically less able to adapt to changes in technology.

Fluctuating Demand

Fluctuating demand is frequently thought to have played a part in Britain's decline, but as Stout (1979) and Prais (1981a) have pointed out this is not unique to Britain and often overseas competitors have experienced worse demand fluctuations. Germany, for example, has tried to overcome these problems by exporting widely in an attempt to iron out some of the peaks and troughs.

North Sea Oil

North Sea oil is said by some to have added to what Blackaby (1979) termed de-industrialisation. Whilst it certainly helped Britain's balance of payments Cairncross (1979) has argued that it has masked the seriousness of the situation as regards manufacturing in Britain, such that when the oil runs out the industrial base will be even weaker making a recovery all the more difficult.

Non-Price Factors

Many observers are now beginning to conclude that the reasons for Britain's decline are not a lack of price competitiveness but is a failure to adopt non-price factors. It is factors such as up-to-date technology, product design and performance, delivery and after-sales service that are assuming greater importance (Thirwall 1982, Stout 1979, Alford 1988). This would suggest, therefore, that management practices and attitudes contribute as much to success as macro-economic factors.

Commitment to Manufacturing

When one considers the contribution of manufacturing to GDP (Table 3.5) Britain's commitment to manufacturing industries is brought into question. Service industries have shown much higher growth rates such that they have been contributing around 70% to the country's GDP in recent years. Whilst the 1980s saw an improvement in Britain's manufacturing performance she is still a long way behind Germany. As Mayes (1987) points out manufacturing industries are vital for the long-term health of a nation. Therefore, a study of the most strategic industry in the whole sector in which Britain is compared against the most successful country in the world should uncover some key ingredients for success.

3.5 International Competitiveness

Earlier discussion has briefly highlighted some of the reasons for the decline of the British economy and the success of the Germany economy. Taking a number of measures of competitiveness and economic indicators the performance of the two countries will be compared with that of Japan and the United States. Data on the economic performance of the four countries has been considered, where possible, up to 1990. However, following the re-unification of Germany most statistics since 1990 include both east and west Germany and as such are not directly comparable with earlier data.

Price Competitiveness

Table 3.2 Producer Price Index (Manufacturing) 1985 = 100

Year	Britain	Germany	USA	Japan
1970	19.0	50.0	35.8	52.1
1975	37.6	70.0	56.6	77.3
1980	71.7	84.5	87.1	100.0
1985	100.0	100.0	100.0	100.0
1986	104.3	97.6	97.1	95.3
1987	108.3	97.2	99.7	92.5
1988	113.2	98.8	103.7	92.3
1989	119.0	102.2	108.8	94.2
1990	126.0	103.7	112.7	95.7

Source: OECD, Main Economic Indicators, Historical Statistics 1969 - 1988
OECD, Main Economic Indicators, August 1991

Table 3.2 shows that producer prices have been rising more rapidly in Britain than in Germany, Japan and the United States. Labour costs (Table 3.3) have also been rising more quickly in Britain which suggests that Britain is less competitive than Germany. Posner and Steer (1979), however, argue that these measures only record changes and not actual levels of competitiveness. Buckley et al (1988) are also sceptical of this measure noting that it fails to consider the performance of industries and companies, such that a company might well be price competitive yet fails to achieve satisfactory levels of profitability because of poor product and market positioning. The authors go on to argue that "competing on price is not necessarily the optimum form of competition" (Buckley et al 1988 p. 189) and that in industries and companies where quality is a source of competitive advantage low price would be an inappropriate strategy.

Table 3.3 Unit Labour Costs (Manufacturing) 1985 = 100

Year	Britain	Germany	USA	Japan
1970	22.6	55.0	53.0	47.0
1975	42.0	80.0	68.0	89.0
1980	80.4	93.0	90.0	92.0
1985	100.0	100.0	100.0	100.0
1986	105.1	104.0	100.0	104.0
1987	106.0	107.0	97.0	102.3
1988	108.9	107.0	98.0	97.9
1989	113.6	108.0	99.0	97.9
1990	123.7	110.0	99.0	100.0

Source: OECD, Main Economic Indicators, Historical Statistics 1969 - 1988
OECD, Main Economic Indicators, August 1991

Share of World Trade

In order to sustain international competitiveness a nation must export its goods. Germany has in this respect performed extremely well with the result that in 1990 it was the number one exporter of goods in the world with a share of 12.4%. This compared with a share of world trade in Britain of only 5.6% (Table 3.4).

Table 3.4 Shares in the Value of Total Exports

Year	Britain %	Germany %	USA %	Japan %
1961	8.9	10.2	16.3	3.4
1965	8.0	10.3	15.5	4.9
1970	6.7	11.8	14.7	6.6
1975	5.2	10.8	13.0	6.7
1980	5.8	10.1	11.8	6.8
1985	5.6	10.1	12.0	9.7
1986	5.4	12.1	11.3	10.5
1987	5.6	12.5	10.8	9.8
1988	5.4	12.0	12.0	9.8
1989	5.2	11.7	12.5	9.4
1990	5.6	12.4	11.9	8.7

Source: I.M.F. (1991), International Financial Statistics Yearbook

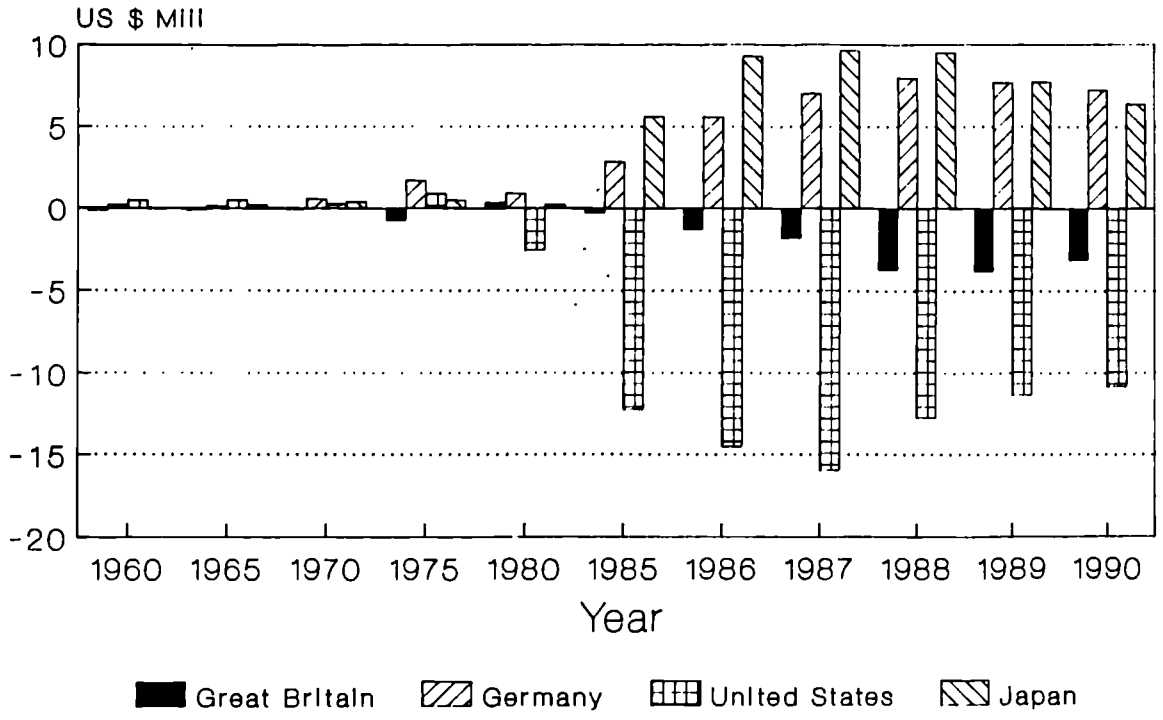
Francis (1989) notes, however, that loss of world share in exports is not necessarily a useful measure of poor international competitiveness as the loss could be explained by the increasing rate of industrialisation of world trade. Whilst this explanation appears to be feasible it does not explain why it is that Germany has succeeded in maintaining a high share of world trade since the 1960s and Britain's share has continued to fall. Buckley et al (1988) argue that exports in general are not a good measure of a country's competitiveness because they do not take into account sales made as a result of foreign direct investments. They suggest, however, that this measure could be improved by examining market share on an industry basis and by considering the destination of exports.

Import Penetration of Manufactured Goods.

A country's level of competitiveness can also be influenced by an increase in the level of import penetration. This is again questioned by Francis (1989) because he argues that imports are likely to grow as a result of economic growth and increased internationalisation.

Figure 3.1 shows clearly that since 1985, Britain's imports have significantly outpaced exports leaving her with a considerable trade deficit. In fact since 1960 Britain has only registered a trade surplus on four occasions. On the other hand, since 1960 Germany has always had a trade surplus, matched only by Japan and in 1990 Germany's trade balance actually exceeded that of Japan.

Figure 3.1 Trade Balance 1960 - 1990



Source: I.M.F. (1991), International Financial Statistics Yearbook

Contribution Manufacturing makes to the Economy

In Britain the contribution manufacturing makes to the economy has been declining steadily (Table 3.5). The decline in manufacturing in Britain has been absolute and the over-emphasis on services does give some cause for concern particularly as many services ride on the back of manufacturing industries. Francis (1989) contends that as manufacturing declines so ultimately will services. Coupled with a feeling that services are less tradeable across national boundaries this does not bode well for Britain. He also argues that the inclusion of North Sea Oil in the figures is likely to result in a lower contribution of

manufacturing to GDP and that some manufacturing industries may continue to be competitive.

Table 3.5 Contribution of Manufacturing to GDP 1965 - 1989

Year	Britain %	Germany %	USA %	Japan %
1965	30.0	40.5	28.9	31.8
1970	28.1	41.2	25.7	35.9
1975	25.8	37.3	23.4	29.9
1980	23.2	32.6	21.8	29.2
1985	20.7	31.9	17.5	31.6
1986	20.7	32.2	17.0	30.5
1987	19.8	31.3	16.6	31.4
1988	N/A	31.1	N/A	31.9

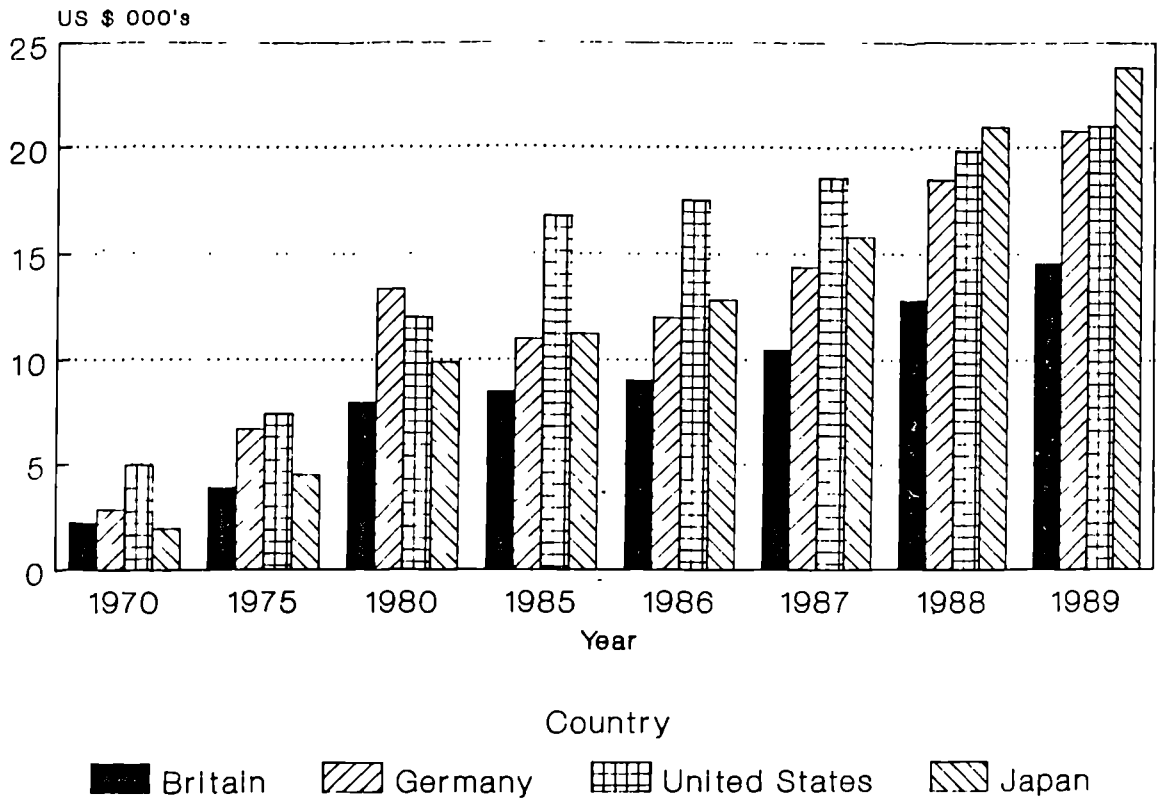
Source: OECD (1982) National Accounts, 1963 - 1980
OECD (1989) National Accounts, 1976 - 1988

A country's share of world manufacturing output is a further measure of success such that a drop in world share is an indication of a decline in competitiveness. However, Buckley et al (1988) argue that, as with any other single measure this approach could also be misleading.

Gross Domestic Product

An examination of GDP per capita and growth in GDP further demonstrate the strength of the German economy. It can be seen from Figure 3.2 and Table 3.6 that the performance of the German economy has followed a similar trend to that of the Japanese economy. Although the Japanese economy has seen growth rates which are much higher, in comparison to the British and American economies German has experienced very good performance.

Figure 3.2 GDP per Capita 1970 - 1989



Source: The World Bank (1991), World Tables

Most of the discussion above has concentrated on historical performance measures. In order to assess the true competitiveness of a country Buckley et al (1988) argue that it is also necessary to consider potential performance (eg. the role of R & D and technology) and the management processes involved in creating that competitiveness (eg. effective organisational integration and training). They also point out that single measures of success cannot fully capture the complexity of national competitiveness and contend that competitiveness should be measured at the national, industry and firm level.

Fröhlich (1989), however, believes that "the competitiveness of a country essentially is the competitiveness of its businesses" (p. 21) and if companies can satisfy customer requirements in both domestic and overseas markets at low cost the country itself will be competitive. Macro-economic policies only act indirectly by making things either more difficult or easier for companies to compete with their foreign rivals. Economic policy cannot make a bad product sell nor can it influence whether or not a company is successful overseas. Therefore, the key determinants of international competitiveness are factors such as management, engineering and marketing. Pettigrew et al (1989) also agree that the ability to improve the competitiveness of a country lies at the firm level. These company level factors will be addressed in more detail in the next chapter.

Table 3.6 GDP - % Change over Previous Year (at constant prices)

Year	Britain %	Germany %	USA %	Japan %
1961	3.0	4.3	2.6	11.6
1965	2.2	5.3	8.5	5.8
1970	2.8	5.0	-0.3	10.3
1975	-0.7	-1.3	-1.3	2.9
1980	-1.9	1.0	-0.2	3.5
1985	4.1	1.8	3.5	5.1
1986	4.0	2.2	2.8	2.7
1987	4.6	1.5	3.4	4.3
1988	3.9	3.7	4.4	6.3
1989	1.9	3.8	2.5	4.7
1990	0.7	4.5	1.0	5.7

Source: I.M.F. (1991), International Financial Statistics Yearbook

3.6 Reasons for Studying the Machine Tool Industry

The machine tool industry was selected as the basis for this research because of its strategic importance to the economy of both Britain and Germany. It is a strategic industry because machine tools are essential for industrial development in a wide range of sectors including automotive, aerospace and general engineering (Real 1980). In addition, the consumption of machine tools is often regarded as one measure of a country's rate of industrialisation (Jablonowski 1988).

Over the last fifty years the industry has experienced a significant shift in the dominance of individual countries in the exports of machine tools. From a position of strength the British industry has declined dramatically whilst the German manufacturers have climbed steadily and today are ranked number one in terms of world exports. This turn-round has taken place in spite of the observation by Daly and Jones (1980) that "governments in Britain have taken the view that an efficient domestic machine tool industry is an important ingredient for the economic success of manufacturing as a whole" (p. 53).

Machine tools is an old, well established industry made up predominantly of small and medium-sized companies in both countries. Companies in Britain and Germany are competing largely for the same business which means that performance has to be sustained through high levels of exports.

Although the machine tool industry has been widely researched little attention has been focussed on successful marketing strategies and organisational characteristics in the industry.

3.7 Historical Overview of the Machine Tool Industry

In order to place the current performance of the industry in Britain and Germany in perspective a brief discussion of the development of the industry provides some interesting insights. The industry has been the subject of wide discussion and analysis so only the key issues of relevance to this research will be highlighted here (eg. Sciberras and Payne 1985, Parkinson 1984, North East Trade Union Studies Information Unit 1978, Boston Consulting Group 1985, WS Atkins 1990, Rendeiro 1985, Prais 1981a).

In the middle of the 19th century Britain's machine tools were considered to be the best in the world, but by the turn of the century British manufacturers were losing out to the Americans who were introducing new technologies. At the same time Germany was emerging as a leading producer of machine tools such that by 1913 their exports exceeded those of Britain by four times. This put Germany in the position of the world's number one exporter of machine tools with nearly 50% share. As Germany rose to play the dominant role in the industry British performance was on a downward spiral as her share of world exports fell to just 7%. Many reasons for this demise of the British machine tool industry have been

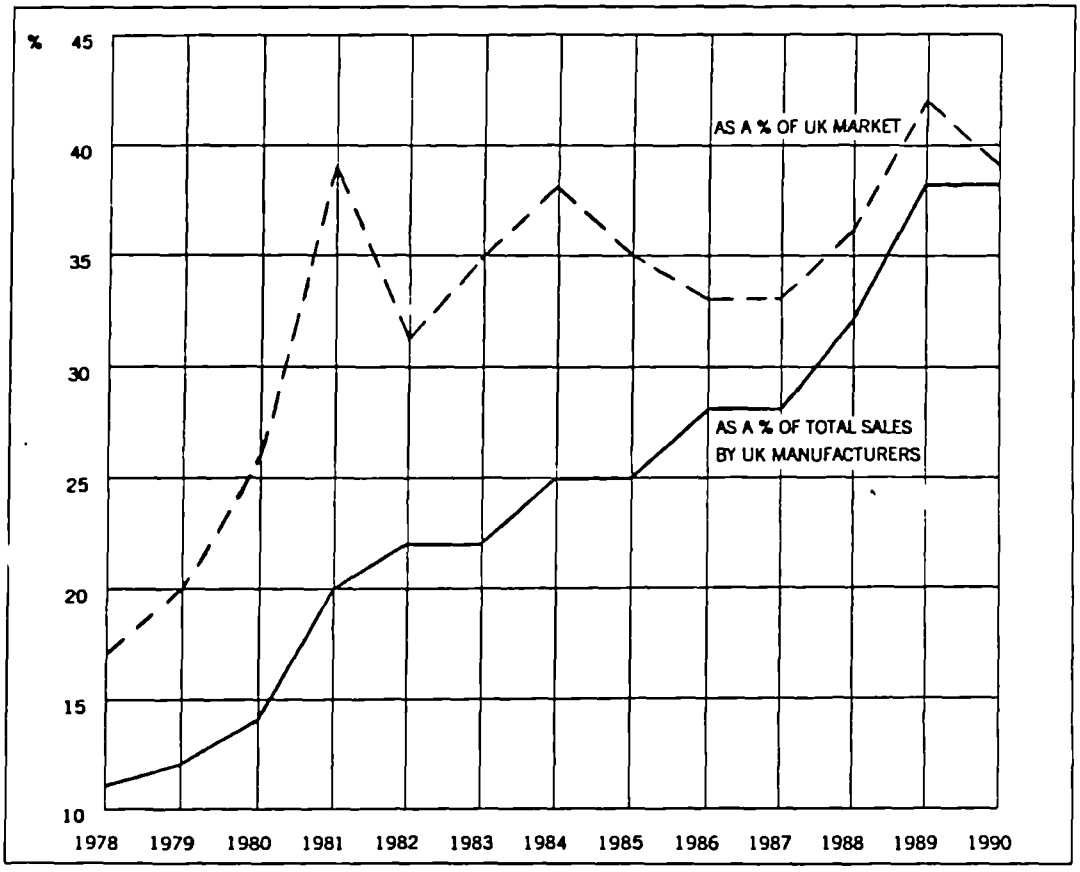
considered over the years and broadly follow the pattern of the general decline of the British economy.

Following the second world war Britain saw a recovery of her machine tool industry because there was little competition from major rivals like Germany and Japan as they were rebuilding their manufacturing industries. During this period profits were good and a certain amount of complacency set in. This attitude in the post war years goes some way towards explaining the predicament in the industry today. Whilst the Germans and Japanese were investing heavily in both new machinery and new technology, British manufacturers were producing and selling conventional machine tools with little regard for the essential long-term research necessary to sustain the industry in the future.

Major restructuring in the 1960s led to a high degree of rationalisation in Britain with the inevitable result that companies concerned themselves more with short-term financial gain than with the long-term future of the industry. This mistake cost Britain highly as major companies like Alfred Herbert, once the country's largest machine tool manufacturer, went out of business. Major restructuring of the scale undertaken in Britain did not happen in Germany and individual companies were in a better position to develop new products. So whilst British manufacturers were trying to compete in world markets with conventional machine tools the Germans, Americans and Japanese were offering advanced CNC machines. It was not

only a lack of investment that hindered British manufacturers but also a conservatism towards the adoption of unproven technology. Therefore, when CNC, the biggest advance in machine tools for a long time, came in the 1970s American and German manufacturers took first mover advantages. The impact that this has had on British manufacturers is still evident today when the growth of NC machines in the British market is considered (Figure 3.3). This delay by British companies in manufacturing CNC machines is evidence of a failure to respond to changing market requirements.

Figure 3.3 Growth of NC Machines in Britain 1978 - 1990



Source: MTTA 1991

3.8 International Trade in Machine Tools

The historical overview of the machine tool industry has indicated quite clearly that over the last hundred years, in terms of world trade in machine tools, Britain and Germany have swapped places. The following section seeks to show the relative positions of the industry in the two countries.

Machine Tool Consumption

German machine tool consumption in 1990 was over three times that of Britain ($5780.7 million compared to $1800.1 million). Given that a country's consumption of machine tools is said to be a good indication of the health of its manufacturing industry (Jablonowski 1991) it is clear that Germany has a very strong manufacturing base.

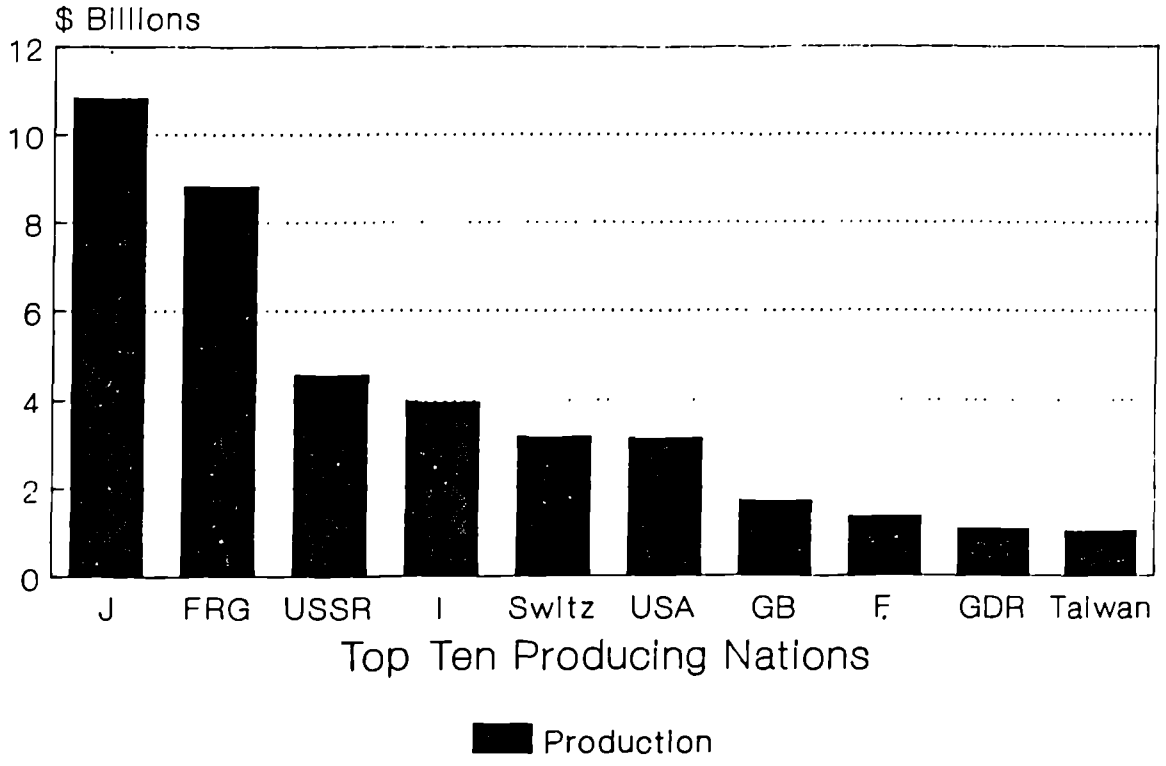
Machine Tool Production

Germany's strength in machine tools can be seen in terms of production. It is second only to Japan and at $8.8 million in 1990 exceeded Britain's machine tool output fivefold. As a result, in 1990, Germany achieved a world share of machine tool production of 18.9%. This compares with the Japanese share of 23.2% and Britain's share of just 3.7% (Figure 3.4).

Between 1989 and 1990 the machine tool industry as a whole experienced a growth rate in output of 9.5%. Germany made an impressive gain of 28.5% and Britain, whilst exceeding the

industry average with a growth rate of 15.9% continued to be behind Germany.

Figure 3.4 : World Machine Tool Production 1990



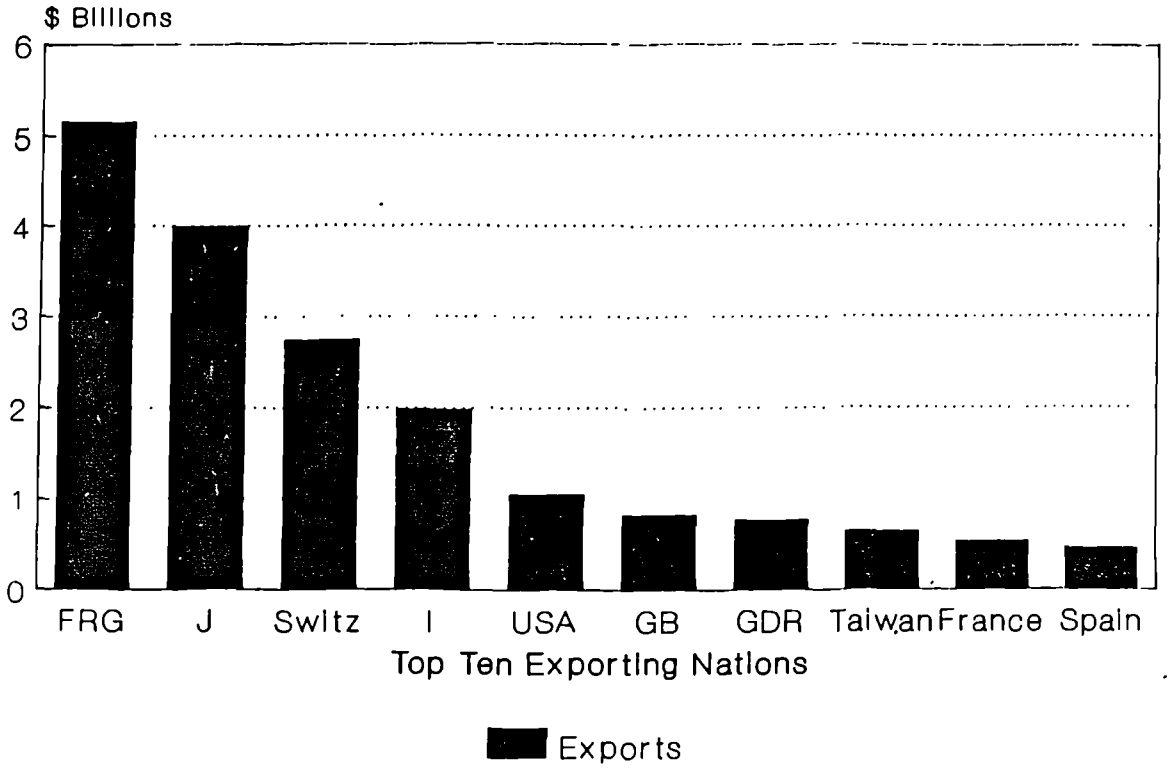
Source: Jablonowski (1991)

Export Performance

Germany's performance in the machine tool industry has been sustained by a high level of exports. Whilst Japan is predominantly supplying its domestic market Germany is exporting nearly 60% of its production with the result that Germany is the world's number one exporter of machine tools. Germany's share of world exports in 1990 was 23.5% compared with a British share of just 3.8%. Germany has held the position as the world's number one exporter of machine tools nearly every year since the 1960s. Britain, on the other hand, has been consistently in sixth or seventh place.

Figure 3.5 details the top ten exporting nations for machine tools.

Figure 3.5 World Exports of Machine Tools 1990



Source: Jablonowski (1991)

In 1990 Britain exported just under 50% of her machine tools with the United States and Germany the two most important markets. Of particular interest though is the increase in sales by British manufacturers to Germany during 1990. During the 1980s trade was slow but exports to Germany in 1990 increased by just under 60% on the previous year, which is an encouraging achievement by British industry. Germany's export performance, however, has been outstanding with France, the United States and the Soviet Union representing the biggest overseas markets.

In comparing the export markets of Britain and Germany it is interesting to note that in 1990 Britain's exports to other European Community countries was nearly half of all exports whereas for Germany it was only 33%. With the introduction of the Single European Market this trade level with Europe is a good sign for Britain.

The trend in export activity in Britain cannot, however, be ignored. In 1963 Britain had a share of world exports amounting to 10.2% putting her in third place behind Germany and the United States. Japan at that time had a mere 1.3% share of world exports in machine tools. By 1990 Britain only had a share of 3.8% (sixth position) and Germany had 23.6% and Japan 18.3%.

Import Penetration

In spite of reasonable levels of exports the British machine tool industry has had a negative trade balance since 1983 both in unit and value terms. Although the imbalance was less severe in 1990 this negative balance looks set to remain for the foreseeable future. Of particular significance for the British industry is the fact that the imports are predominantly advanced machine tools, whilst the exports are conventional units. As Saunders (1978) pointed out "Britain tends to export cheap and import dear" (p. 84). The domestic machine tool market in Germany, on the other

hand, is highly self sufficient with exports exceeding imports by 2.5 times.

In 1990 imports into Britain from Germany accounted for 25.7% of all Britain's imports. This contrasts with Britain's share of German imports of only 6%. Since 1980 imports from Germany have accounted for between 25% and 30% of Britain's total imports of machine tools. However, the trend is one of decreasing share as the Japanese play a more important role in British manufacturing. Britain's imports of machine tools from Japan have increased from 12.5% in 1980 to nearly 23% in 1990 and is evidence that the Japanese pose a major threat to German manufacturers.

3.9 Structure of the Machine Tool Industry

Taking Porter's five competitive forces (Figure 3.6) a brief structural analysis of the machine tool industry is undertaken.

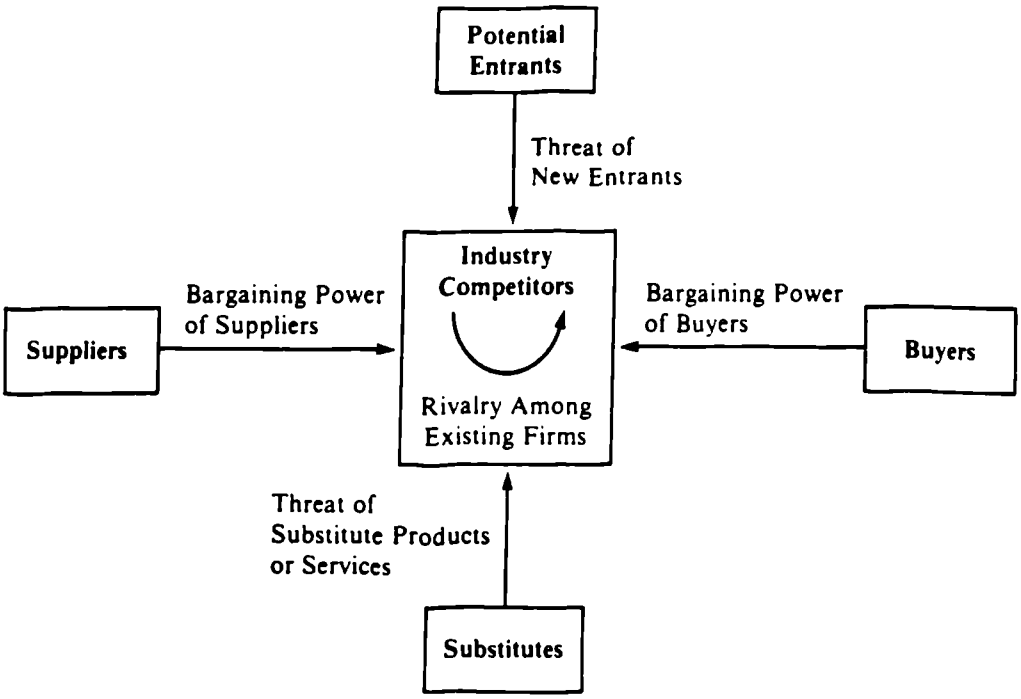
Threat of New Entrants

The machine tool industry is a mature industry with many well-established companies. This is particularly true in Germany with many companies founded in the last century. As a result, in many cases, long-standing relationships between manufacturer and customer have built up over the years.

The rate of technological advancement in the last two decades has raised market entry barriers, because high

levels of investment in both plant and machinery and research and development are essential for long-term success. Profit margins in the industry are constantly being squeezed as a result of fierce competition and high R & D costs make the industry less attractive for potential entrants. In spite of high entry barriers there have been new entrants in recent years, namely the developing nations such as Taiwan and Korea. They have gained market share by offering low-priced standard machine tools. This strategy poses a major threat to the British industry as many companies still produce conventional units and are not well placed to compete against the new entrants on price.

Figure 3.6 Competitive Forces



Source : Porter 1985

Threat of Substitute Products

The threat of substitute products is very real for the machine tool industry. With the emergence of plastics, ceramics and composite materials the need to machine parts is reducing. In addition improvements in casting technology reduces the amount of machining needed on certain parts. Faced with such a threat the industry needs to look for new applications for machine tools or alternatively consider technologies which would allow the machining of new materials.

Bargaining Power of Suppliers

For the most part suppliers to the industry are numerous with the result that their influence over the manufacturers is low. One area of particular interest, however, concerns the suppliers of control equipment. The majority of numerical control suppliers are Japanese. Given that they are the only suppliers to the Japanese domestic manufacturers they have a big influence on the industry as a whole, by offering preferential rates to their countrymen. Such an approach could have major implications for the competitiveness of both British and German machine tool companies. This observation is all the more worrying because there is currently no British supplier of control systems and in Germany there is only one, with the result that Japanese control suppliers dominate this side of the supply chain in both countries (Sciberras and Payne 1985).

Bargaining Power of Buyers

Machine tools are used in a wide variety of applications from aerospace to automotive to general engineering and by companies of all sizes. The influence of the customer, therefore, varies from industry to industry. In the automotive industry, in particular, buyers have increasing influence over the machine tool manufacturers as companies rationalise and centralise their buying functions. The introduction of simultaneous engineering has also given the buyer more power as they are able to specify more precisely their individual requirements.

It is important to note that many of the technological advances in the industry have been driven by the customers as they demand greater automation and precision in order to cut both production and labour-related costs. The customers are, therefore, very influential in the development of the machine tool industry as a whole. This would suggest a great need for building long-term relationships with customers.

Rivalry amongst Competitors

Competition in the industry is fierce even though there is a proliferation of small specialised manufacturers. The dramatic rise of the Japanese in the 1970s and 1980s to become a significant force in the industry has intensified competition. Both Britain and Germany suffered as a result of the emergence of the Japanese, but the Germans have responded quicker and more effectively to the technological

advantage gained by the Japanese. The nature of competition in the industry has changed quite dramatically as a result of the introduction of NC machines into Europe and America and caught other manufacturers unawares (even Germany).

3.9.1 Industry Concentration and Ownership

Industry Concentration

Within the European Community the industry is concentrated in five countries - Germany, Italy, France, Britain and Spain. These five countries account for 97% of all EC production of which half is manufactured in Germany (W S Atkins 1990). Detailed information on concentration is difficult to obtain because many organisations, particularly in Germany, do not disclose full information on their machine tool activities. Daly and Jones (1980) have, however, observed that the machine tool industry is not concentrated in the hands of a few large companies, but that there is a proliferation of small- and medium-sized companies. However, the W.S Atkins report (1990) notes that Germany, together with Italy, has the highest concentration of larger companies (over 200 employees).

Company Size

In 1989 the Machine Tool Technologies Association (MTTA) had 120 registered members and the Verein Deutscher Werkzeug-maschinenfabrikanten (VDW) had a membership of 350. These figures, however, include not only manufacturers but also importers, overseas manufacturers and related equipment

manufacturers. In order to get a clearer picture of the manufacturers only British and German companies were included in this research. This resulted in the breakdown, by company size, illustrated in Table 3.7.

Table 3.7 Breakdown of Machine Tool Manufacturers by Size Range

	No. Employees	No. Companies	% Total
Britain	0 - 199	64	80
	200 - 499	12	15
	500 or more	5	5
Germany	0 - 199	91	49
	200 - 499	51	27
	500 or more	45	24
Total	0 - 199	155	58
	200 - 499	63	23
	500 or more	50	19

Source: CECIMO (1989), Mittelständische Unternehmnen (1989) Kompass (1989), Kompass Deutschland (1989),

Although the average size of companies in Germany is larger than those in Britain, over 75% of manufacturers in Germany employ less than 500 people. However, there are more big companies in Germany with 12 organisations employing over 1000 people. In Britain in 1989 when the research data was collected there were no British organisations with more than 1000 employees.

Employment Levels in the Machine Tool Industry

Whilst the machine tool industry in both countries has seen a downward trend in the numbers employed since 1970 Table 3.8 shows that in Britain the situation is very serious and

that by 1990 nearly five times as many people were employed in Germany than in Britain. It is particularly interesting, however, that, following the recession of the early 1980s, the German industry has made a strong recovery with the size of the workforce increasing by 16% since 1985. Meanwhile employment in the British industry has fallen by a further 13%.

Table 3.8 Employment in the Machine Tool Industry

Year	Britain 000's	Germany 000's
1970	65.1	121.1
1975	49.1	109.3
1980	46.4	98.0
1985	23.8	88.0
1986	23.4	93.0
1987	23.2	93.5
1988	22.8	94.0
1989	22.0	97.5
1990	20.7	102.0

Source: VDMA (1990), MTTA (1991)

Company Ownership

There are two major types of company in Britain; small- and medium-sized independent companies and subsidiaries of larger engineering organisations. The latter exert much pressure on the machine tool manufacturers to contribute significantly to the profitability of the whole group, resulting in an over-emphasis on short-term financial performance. In addition, in recent years, a large number of overseas organisations have set up manufacturing facilities in Britain in particular American and Japanese organisations like Cincinnati Milacron and Yamazaki. In Germany, on the

other hand, a large number of machine tool manufacturers are privately owned, often family businesses, that compete through product differentiation based on quality and reliability. The structure of the industry in Germany has led one observer to comment:

"In the past the West German accounting practice which allows manufacturing companies to build up a decent layer of fat to see them through the lean periods of the demand cycle has helped the machine tool makers survive. Couple this with the immense flexibility of the German industry, made up as it is in the main of medium sized family companies able to make swift decisions, and act on them immediately, and it is not difficult to understand why some of its European neighbours have seen West Germany as the major threat to their home grown manufactures." (Gooding 1978)

Although there are differences in size of companies in the industries in the two countries, neither industry is highly concentrated, with both having a high proportion of smaller companies making a comparison of the machine tool industry in Britain and Germany meaningful.

3.9.2 Products and Markets in the Machine Tool Industry

In a strategic study of the EC machine tool industry the Boston Consulting Group (1985) highlighted the diverse nature of the sector in terms of the number of products, applications, markets served and competitors. The study identified a range of industry segments and considered the

competitive environment of each. Segments were classified according to two dimensions:

i) the number of ways to achieve competitive advantage

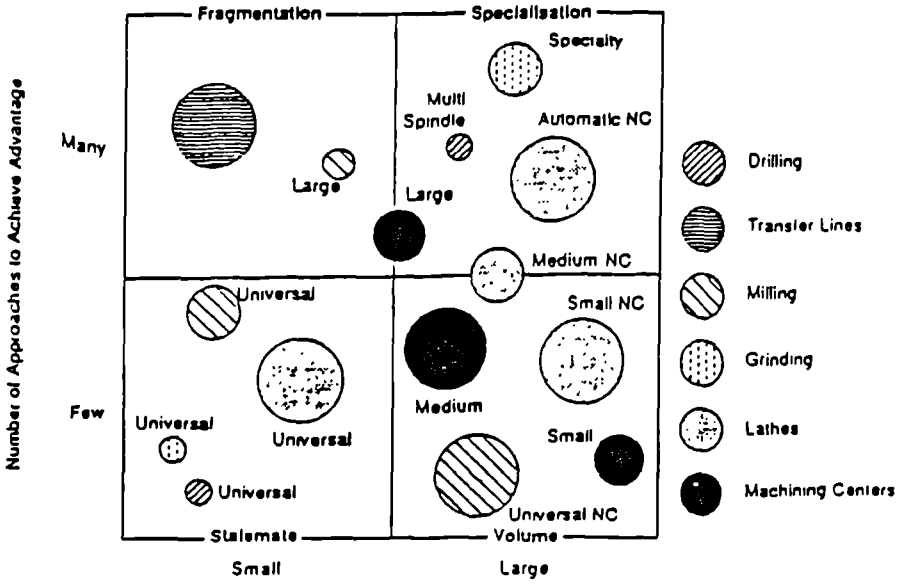
ii) the potential size of advantage that could be achieved over the competition.

Figure 3.7 shows the resultant 2 x 2 matrix and the characteristics associated with each segment.

Products

British manufacturers have, in general, produced general purpose conventional machine tools such as lathes, and milling machines and have been slow to develop CNC machines (see Figure 3.3). Meanwhile, the German industry has a long-standing reputation for producing special purpose and general purpose machine tools to a very high standard. However, the Germans too have been slow to respond to the move towards CNC, particularly on general purpose machines. This has allowed the Japanese to take a strong foothold on the market and, although CNC is now widely adopted in Germany there is still only one major German manufacturer of numerical controllers. This means that German machine tool companies are dependent on Japanese controllers. Real (1980) notes, therefore, that, although the Germans may be world leader in machine tool exports, Japan is world leader both in terms of technology and production.

Figure 3.7 The Machine Tool Industry: The Competitive Environment of Selected Industry Segments



(the size of the circle represents the relative size of the market in $).

Segment Definition	Stalemate	Volume	Fragmented	Specialization
Degree of differentiation	Low	Low	High	High
Availability of technology	Wide	Limited	Wide	Limited
Potential for price premia	Low	Low	Limited	High
Costs Economics				
Investment requirements/ barriers to entry	Low to Medium	High	Low	Medium to High
Slope of scale + experience curve	Shallow	Steep	Flat to Negative	Steep (1)
Production volumes	Medium to High	High	Low	Medium
Level of product standardization	High	High	Low	Medium
Market and Competition				
Number of competitors	Many	Few	Very Many	Few (2)
Location of competitors	OECDs + LDCs	Major OECDs	All OECDs	Major OECDs
Main market areas	Domestic/ Continent/World (3)	World	Mainly Domestic	Continent or World
Distribution channels	Indirect	Indirect	Direct (4)	Direct (4)

(1) In segment specific cost
(2) Within specialization segment
(3) Depending on the level of maturity and the ability of growing economies to satisfy their domestic demand
(4) Particularly in home market

Source: Boston Consulting Group

Source: Boston Consulting Group (1985)

New Product Development

Real (1980) noted that little basic research is conducted in this industry sector and that product improvements of a more incremental nature are made in order to adapt products to

better meet customer requirements. In a study of new product development in British and German machine tool companies Parkinson (1984) found that there was a distinct contrast between the success of British and German companies at new product development and he concluded that "differences in technical quality of the products offered by British and West German companies may be one of the main reasons for differences in their competitive international trading performances" (p. 57). In spite of the fact that this is a mature industry technological development is still occurring such that it is likely to be an industry which will in the foreseeable future be subject to radical change (Sciberras and Payne 1986).

Markets

The BCG report argues that it is quite common for manufacturers to concentrate on more than one type of market environment with the result that it becomes more difficult to match customer requirements. As markets are seeing increased customisation the Atkins (1990) reports recommends that "anything EC producers can do to improve the quality of the non-price factors of their product will strengthen their competitive position" (p. 33).

Because of the strategic nature of the industry machine tool manufacturers are amongst the first to feel the effects of a recession. This is because key industries cut back on investment in new plant and machinery (Parkinson 1984). As a result demand for machine tool fluctuates in a cyclical

pattern (Real 1980). The largest purchaser of machine tools is the automotive industry therefore demand for machine tools is derived and closely follows the fate of the motor industry (Daly and Jones 1980).

A study in 1990 by Atkins Consultants in updating the BCG (1985) report concluded that the EC market for machine tools is buoyant and is in a strong position to take advantage of the increasing internationalisation of world markets. Some concern is expressed, though, that the industry is still not global or even pan-European enough. The industry is still largely fragmented and "there exists a threat, especially in volume and some large specialist markets, that EC producers will lose competitive advantage by being too small" (Atkins 1990 p. 20).

4.0 AN ANGLO-GERMAN COMPARISON

4.1 Introduction

This chapter discusses firstly the different theoretical perspectives which can be adopted when conducting comparative management research. It then continues by considering the key differences between Britain and Germany and how industry operates in the two countries by comparing factors such as education, company structure, banking systems, management, marketing strategy and organisational characteristics. Finally a series of hypotheses are developed which are to be tested in the course of this research.

4.2 Reasons for Comparative Study

The main reason for comparing organisations in different countries is to understand how and why they are different (Lammers and Hickson 1979). As a consequence it can be established whether management in one country can learn from its counterparts in another country.

Before embarking on a comparative study of two nations it is important to adopt a theoretical framework within which to analyse organisations and their activities. There are three main theoretical approaches all of which are based on different assumptions and all of which have been discussed extensively in the organisational behaviour and social

science literature. These three key perspectives are discussed briefly below.

i) Theory of Industrialism and Contingency Perspective

Industrialism contends that technology determines organisational structure and behaviour with the result that organisations will be the same in different countries regardless of culture. The contingency perspective, whilst following the same principle as industrialism only sees technology as being one of many factors influencing business organisations. This perspective assumes that "countries at similar stages of development adopt the same approach to the design of their business (and other) organisations" (Lane 1989 p. 22). This "culture-free" thesis, originally expounded by Harbison and Myers (1959), takes the view that in order to survive and perform well organisations have to follow technological and market developments. They referred to this process as the "logic of industrialisation". As part of this process of industrialisation the "culture-free" argument contends that all companies go through similar phases as they grow and therefore, face similar problems.

As Lane (1989) explains:

"the contingency approach posits that a limited number of contingencies in the immediate environment of the business organisation - contingencies such as scale or size, degree of dependence and/or of market stability, production

technology - impose a logic of rational administration on the organisation. Irrespective of the culture, economic and political system of a society, this logic must be followed to ensure survival of the organisation" (p. 22)

Exponents of this "culture-free" thesis do, however, accept that culture does have some impact on organisations. Harbison and Myers (1959) state, however, that whilst cultural factors can slow down the process of industrialisation they cannot stop it completely.

ii) Capitalism

Researchers adopting this approach to comparative management studies take the view, that because nations operate in the capitalist system with similar pressures being exerted on them, all organisations will have the same goals. Lane (1989) clarifies "although business organisations and other elites may respond to system pressures in nationally distinctive ways they are still driven by the same forces to achieve the same goals" (p. 26).

A study by Budde et al (1982) of 18 British and 26 German organisations revealed that "the corporate goals espoused by senior British and German managers suggest that in each country the satisfaction of capitalistic economic objectives remains paramount. Profitability and growth are primary corporate goals" (p. 14).

iii) Culturalist Approach

The culturalist approach contends that, in spite of increasing similarities in organisational structures, national distinctiveness still exists and goes some way towards explaining differences between individual organisations. It takes the view that managerial attitudes, values and beliefs are greatly influenced by national culture (Nath 1986, Hofstede 1980). Indeed Child (1981) argues that "it is impossible to understand fully the nature of .... organisations without the aid of a theory of how such organisations are embedded within their respective societies" (p. 350-51). Whilst there is much truth in this view, it has to be noted that measuring the effects of cultural factors on organisations is extremely difficult not least because there is no agreed definition of culture in the comparative management literature (Adler 1983, Nasif et al 1991).

A detailed study of the cultural factors impacting Britain and Germany is beyond the scope of this thesis, but it is recognised that marketing strategies and organisational characteristics cannot be considered in isolation. From his cross-national study of organisations and management in Britain and Germany Child (1981) concluded that "cultural effects will be most powerful in the processes of organisation relating to authority, style, conduct, participation and attitudes, and less powerful in formal structuring and overall strategy" (p. 347-48).

It is difficult to identify exactly what causes successful performance. Lawrence (1980) argues that "one cannot know for sure that apparently laudable features of industrial organisation in West Germany really are contributing to national economic success. It may be that economic success occurs in spite of, not because of, such features" (p. 177).

Comparisons of management in Britain and Germany have concentrated largely on the management of production (eg. Daly et al 1985, Lawrence 1980) and the tasks and backgrounds of managers (eg Budde et al 1982, Child et al 1983). Fewer studies have considered the management of products and markets. Whilst a comprehensive review of all these comparative studies is beyond the scope of this thesis there are a number of important factors which are relevant to this research and form the basis for the hypotheses to be tested.

It is the intention, in this chapter, to build, from the wide body of literature in social science, economics and history, a picture of British and German organisations and the factors which have influenced their performance. The approach adopted in this research is most closely related to that of contingency theory and capitalism. Because Britain and Germany are at similar stages in the industrial development cycle companies in the two countries face similar opportunities and threats. In addition companies in the machine tool industry are likely to be driven by the capitalist goals of growth and profitability. It is,

however, acknowledged that the history of the two countries and their respective institutions are likely to have had some influence on the development of organisations and the following sections will, therefore, highlight the key areas which the literature suggests have had an impact on management and organisations and as a result the economic performance of Britain and Germany.

4.3 External Factors Influencing British and German Companies

External factors influencing success are the result of the historical and industrial development in the two countries - the factors which, it could be said, are cultural. Whilst it is important to consider such factors it is not the intention of this research to draw any conclusions as to the level of importance of each to individual companies in the machine tool industry. This research will, therefore, only treat those factors which have a bearing on the present study.

4.3.1 Company Ownership and Structure

The most distinct difference in organisation structure between British and German companies is the fact that German companies typically have a two-tier board system. The day-to-day running of the company is the responsibility of the *Geschäftsführung* in the GmbH (unquoted limited liability company) and the *Vorstand* in the AG (publicly quoted

company). They have collective responsibility for the organisation of the company, although, in many instances the technical directors have greater influence. In addition to this board all AG and GmbH organisations with more than 500 employees are required, by law, to have an *Aufsichtsrat* (supervisory board). The idea of a supervisory board is unique to Germany and it technically has control over the *Geschäftsführung* or *Vorstand*. The main objectives of the *Aufsichtsrat* are to approve long-term investment plans, monitor the accounts of the company and elect members of the *Geschäftsführung* or *Vorstand* (Lawrence 1980). The members of the *Aufsichtsrat* are themselves elected by the shareholders and the employees. It is important to note that there is no overlap in the membership of the two boards. The *Aufsichtsrat* is said to reflect the business relationships of a company as its members are typically representatives of the company's banks, customers, suppliers, shareholders and senior managers from other companies. Unlike British boards there are no members there purely to add status to the company's board (Lawrence 1980).

The structuring of companies in this way means that the banks, managers and employees have greater involvement in the running of their companies which, in turn, is likely to encourage greater commitment to achieving the companies goals. Whilst some observers point out that, with such a structure, there is potential for the decision making processs to be slowed down (Vogl 1973), this does not appear

to have been a major problem for German companies (Wilpert and Rayley 1983).

In Britain this two-tier system is completely unheard of. Most board members are internal to the company and the Managing Director is frequently chairman of the board. In addition there is no employee representation on the board (Horowitz 1980). The board in British companies is likely to be involved in strategic decision making and the Chief Executive Officer has ultimate responsibility, although much delegation takes place. In recent years financial institutions have become major shareholders in many British companies (pensions funds in particular) and banks are providing better credit facilities but the close relationship which exists in Germany between banks and industry is not evident in Britain (Lane 1989).

Although in Germany, as in Britain, there are different forms of company there are fewer publicly-quoted German organisations and there is still a preponderance of family-owned businesses both small and large. Such ownership and the close involvement of banks in German manufacturing organisations is likely to impact the management style and attitude of German managers.

4.3.2 Financial Systems

The relationship between banks and industry in Germany is unique in the Western world with the result that the

industrial influence of banks in Germany is extensive. The big commercial banks are major money lenders to industry and Dyas and Thanheiser (1976) have noted that "in fact, bank loans far outrank stock issue as a source of capital for West German industry" (p. 56). The banks, however, are an important source of funding, not just for large organisations but, for the small- to medium-sized companies as well. This close relationship means that banks are frequently sympathetic to the need for companies to invest in order to maintain a viable business. As a result Owen Smith (1983) observes that the banks "have almost always tended to place a company's long-term interests above the need for short-term profits" (p. 232).

The most visible sign of bank power is the representation on the Aufsichtsrat. Dyson (1986) observed that

> "firms seek bank representation on their supervisory boards as a way of reducing uncertainty and managing interdependence: for banks have a broad sectoral and macro-economic perspective, and, combining their economic and industrial expertise with their ability to mobilise capital, offer an unrivalled consultancy service, particularly at time of corporate crisis" (p. 131).

These close relationships mean that banks in Germany have a better understanding of a company's business thus minimising risk such that "long-term lending becomes both viable and profitable" (Bessant and Grunt 1985 p. 239). The close links

between banks and industry extend a stage further in that many senior managers also sit on the bank's supervisory board.

In Britain, on the other hand, the City places a heavy emphasis on financial returns. "This means that the criteria for investment in new technology and other projects become unrealistically short-term" (Bessant and Grunt 1985 p. 235). British banks, in turn, have a poor reputation for lending to industrial concerns. This key difference in funding for companies is likely to have an impact on the attitude of managers to their business. The support of the banks in Germany undoubtedly encourages a longer term perspective.

4.3.3 Education and Training

Education and training can influence the success of an economy in two ways. Firstly by providing the necessary relevant skills to the workforce and secondly by providing managers with the appropriate knowledge and experience to run a successful company.

Observers have argued that the strengths of the manufacturing industry in Germany are largely due to their system of vocational education and training which has resulted in a highly skilled and motivated workforce (eg Handy 1987, Locke 1989, Prais 1981b). The differences between the educations systems in Britain and Germany are well documented in the literature (eg Glover 1978, Prais

1981b, Locke 1989, Lane 1989) and a full discussion of them is beyond the remit of this research. The key themes which recur in extensive studies of education in the two countries, and which are considered to impact their economic performance are that people in Germany remain in education longer and that there is also a highly formalised training and apprenticeship scheme which was set up to serve the needs of industry. Because there is such a well developed education and training system in Germany the workforce are both better trained and better motivated than their British counterparts. As Glover (1978) commented:

"commonsense indicates that a country's ability to train and deploy its people intelligently is the most fundamental determinant of its ability to use the physical resources at its command. The countries that are the most successful at training a good proportion of the most able members of each generation for jobs that produce wealth, are likely to be those that are consistently successful in producing wealth" (p. 158).

Over the years it has been noted that technical education in Britain is inferior to that in Germany (eg Bessant and Grunt 1985). There is also felt to be a poor attitude in Britain towards manufacturing as a whole which taking the arguments outlined above could stem directly from a poorer education and training system in Britain. As Handy (1987) observed "the approach to vocational training is at least a symbol of the seriousness with which West Germans treat work and manufacturing work in particular" (p. 43).

4.3.4 Management Education and Development

In Germany "the whole system of management education .... is often evaluated as showing a 'management gap' in comparison with other nations" (Sorge 1978 p. 101). This is largely because there are no MBA programmes in Germany. A hint of the German approach to management lies in the fact that there is no indigenous word for manager in the German language. Because management in Germany is essentially functional there is not the idea of management as a profession (Lawrence 1980).

In Britain, on the other hand, management education is clearly defined with many universities and polytechnics offering a wide range of courses. In addition the MBA is well-developed and provides managers with the necessary managerial skills to supplement their practical experience. However, in spite of numerous MBA programmes, managers in Britain are typically not very well educated (Locke 1989).

Although there has been a high level of commitment in Britain to providing managers with better skills through MBA courses and executive programmes there is increasing recognition that, in manufacturing industries, having senior managers with a good technical background does contribute to an organisation's success (Goldsmith and Clutterbuck 1984).

In Germany first degrees take longer and there is no concept of post-experience management education in the universities

(Locke 1989). *Betriebswirtschaftslehre* (Business economics) is a popular undergraduate course which was first introduced before the second world war as a means of providing students with an integrated approach to functional subjects like accounting, personnel and marketing. The course is held in high regard by industry and has led observers to note that "given the length and thoroughness of German undergraduate degrees it is not surprising that MBAs have not been needed" (Kempner 1984 p. 9).

Further differences in management education in the two countries stem from the MBA because, as Locke (1989) noted "the MBA is generalist and the German [*Betriebswirtschafts-lehre*] specialist management education" (p. 173). This idea of specialisation is prevalent throughout German industry with German managers being functionally specific rather than managers per se. Having acquired a functional background potential managers gain management skills through experience and in-house training.

In a study commissioned by NEDO in 1987 it was estimated that 62% of top German managers were educated to degree level. By comparison the same figure in Britain was 24%. (Handy 1987). This clearly points to a better educated management in Germany than Britain. In manufacturing industries a high proportion of senior managers in Germany are engineers, this is in contrast to Britain where engineers tend to become technical specialists with little responsibility and authority (Glover and Kelly 1987). In

addition a large proportion of senior managers in Germany have Ph.D.'s in their functional area. British managers are less well educated leading to a "less homogeneous, less flexible, less united British operational organisation" (Locke 1989 p. 276).

An interesting comparison drawn by the Handy (1987) study is that in Britain there were 120,000 accountants compared with only 3,800 in Germany although both countries are similar in size. This could go some way towards explaining the heavier emphasis placed on financial considerations by British companies, although Germany may need fewer accountants because of the closer links with the banks.

In Britain the *lower level of qualifications in managers is* perhaps explained when viewed in the light of Handy's (1987) comment that "common sense, character and background have been thought more important than education, with experience the only worthwhile school" (p. 10). Many British companies, however, are starting to invest in the education and development of their managers, but the author observes that "management training in Britain is too little, too late, for too few" (p. 11). He also argues that fewer people have gone into business and management because there is no clear prestigious route in.

In the 1980s the British government conducted a comprehensive review of management education in Britain. The report by Constable and McCormick (1987) concluded that

"there is a widespread recognition that effective management is a key factor in economic growth. Britain's managers lack the development, education and training opportunities of their competitors" (p. 3). It was estimated that British managers only spend an average of one day per year on formal training courses.

Whilst management training assumes greater importance in Germany there is a distinction in the types of training received at different levels. Handy (1987) observed that "training, until top management level, is internal, company-focussed and mostly job specific .... At top management level there is more attention paid to the company environment with more, but still occasional, use of outside seminars" (p. 8). The emphasis placed on both on-the-job and internal training at junior level is important because bigger companies "perceive internal courses run at their own training centres to be a means of emphasising their specific corporate culture and thus stimulating the individual manager to identify with this culture" (Handy 1987 p. 49).

Although in the larger German companies training is taken very seriously it is frequently technical in nature. Only top level managers are likely to receive any training in management issues (Handy 1987). In spite of having better educated managers in Germany "little or no attention is paid to development for the future or for any training not related to the immediate task" (p. 44). One interesting finding of the Handy (1987) study was that, just as in

Britain, small companies in Germany do not indulge in management training largely because it is too time-consuming and costly.

The route to senior management in manufacturing industries in Germany is slow. Because of longer degree courses and national service and often an apprenticeship on top, potential managers do not enter a company until their late 20s. It is often not until they are in their 50s that they get a board position. Promotion though does tend to be from within so a high degree of loyalty is expected as well as a high standard in a functional area such as engineering. This emphasis on internal promotion is said to encourage long-term thinking and a greater loyalty to the company (NEDO 1981, Bessant and Grunt 1985). By contrast in Britain promotion is frequently achieved by moving company which places individual concerns above company well-being and encourages a greater emphasis on short-term thinking (Handy 1987).

An interesting cultural difference between Britain and Germany is the attitude of both managers and workers towards their companies. Within German organisations there is the idea that management and workers have to cooperate for the good of everyone. If the company does well so does the individual and vice versa. This naturally has an impact on motivation as well as industrial relations (Lane 1989). The economic success achieved by Germany as a result of their present management systems has resulted in a positive

attitude in German managers making them strive for even greater success (Lawrence 1980).

4.3.5 The Status of Engineering in Britain and Germany

Given the high level of importance attached to an indigenous machine tool industry and the required level of skills, it is appropriate to consider the status of engineering in the two countries. It has been argued that differences in attitudes to engineering can go some way towards explaining the difference in industrial performance of the two countries. In his book, specifically concerned with production engineers, Lawrence (1984) states that in Germany "engineering enjoys higher status and tends to attract more talent, and in business companies more thought, energy and money go into the technical aspects" (p. 90).

Considering the high levels of vocational training and the well developed apprenticeship scheme in Germany it is not really surprising that "manufacturing enjoys high prestige and attracts some of the best educated members of the higher social groups" (Glover 1978 p. 168). In Germany the status of an engineer is much higher and remuneration reflects this. As a result there is not a shortage of engineers as in Britain. In addition there is a higher level of integration between engineering and management in Germany (Campbell et al 1990). By contrast the status of an engineer in Britain is confused and is likely to have a detrimental affect on the quality of people going into this profession. In

addition fewer engineers are managers in Britain than in Germany. This will impact the ability of companies to develop new products and processes as well as their ability to produce well-engineered, reliable, quality products.

4.3.6 Technology

In order to remain competitive in international markets the adoption of new technology is paramount. New and Myers (1986) have found a reluctance among British manufacturers to develop new products or enter new markets with the consequence that manufacturing practice often lags behind that of their rivals. This is supported by Patel and Pavitt (1987) who note that diffusion of innovation (eg. NC machine tools) is lower in Britain than Germany. This can be seen from the graph in Figure 3.3 which shows the rate of adoption of NC machines by British manufacturers. This backwardness could be attributed to low levels of expertise in engineering and/or the short-term orientation of companies aimed towards quick financial returns which reduces the amount available for investment.

In a study of management attitudes and manufacturing innovation in 25 British and 10 German companies Bessant and Grunt (1985) came to a number of conclusions which have some relevance for this research. They suggest that in terms of the speed and rate of adoption of advanced technology Britain lags behind Germany. At firm level however, they found little difference between the companies they

interviewed such that they comment that "it is just as possible for UK firms to perform well in the management of innovation" (p. 6). The authors acknowledged that differences did exist in terms of education levels, but they were not found to be significant at firm level.

4.3.7 Comparative Advantage of Nations

More recently Porter (1991) has argued that the national environment plays a major role in the competitive success of companies. Using the theory of comparative advantage first developed by Ohlin (1933) Porter (1991) considers both Britain and Germany as part of a ten nation study. Little of what Porter writes about the two countries is surprising and draws extensively on the factors highlighted above and in Chapter Three. For Germany he cites comparative advantages in areas such as education, skills development, technical and research capabilities and high levels of management and worker commitment to their organisations. He argues that Germany has developed a world-wide comparative advantage in metal-working industries in spite of disadvantages in natural resources and high labour costs. Porter (1991) concludes that "in a range of industries German firms have been world leaders for a century or more through achieving higher and higher levels of differentiation and competing in more and more sophisticated segments" (p. 356).

Porter (1991) acknowledges, however, that, in spite of the decline of manufacturing industries, Britain has achieved

national comparative advantage in some industries notably in consumer, service and financial markets. Where Britain is at a comparative disadvantage is in those areas where Germany is strongest such as education and skills development. These are the factors which are of particular importance to a strong indigenous machine tool industry. Porter (1991) further argues that attitudes have a major impact on the relative strengths of certain industries in the two countries, a factor which has been considered earlier.

In addition to the factor advantages discussed earlier Porter (1991) argues that "the composition of home demand shapes how firms perceive, interpret, and respond to buyer needs" (p. 86) and that a country can gain a competitive advantage in an industry where domestic customers give local suppliers a clear idea of their needs before overseas competitors. This can also result in domestic customers placing pressure on local suppliers to develop new products faster thus increasing their world competitiveness. This situation is likely to have occurred in the machine tool industry in Germany as many manufacturers have been set up close to key customers specifically to serve local market needs. The unique German company structures discussed earlier also promote close relationships between buyers, manufacturers and suppliers giving Germany a competitive advantage in machine tools.

In addition to customer demands Porter (1991) comments on the importance of related and supporting industries in

developing a country's competitive advantage. The success of a particular industry can be aided by "the presence of internationally competitive supplier industries" (p. 101). Whilst Porter (1991) acknowledges the importance of this concept in the Japanese machine tool industry the impact of supporting industries in Britain and Germany has been less.

4.4 Company Specific Differences between British and German Organisations

In addition to the external factors which influence the way organisations operate, there are many company level factors which explain the differences in performance between Germany and Britain. As Turnbull and Cunningham (1981) noted "although the successful performance of any company is influenced to some degree by Government policies and economic factors, it is the individual manager who gives the stimulus and drive to success, who seizes opportunities and responds to competitive pressures" (p. xii).

Many comparative investigations of British and German companies have been undertaken in a variety of management disciplines, eg. industrial relations (Maitland 1983, Hartmann et al 1984); organisational behaviour (Sorge and Warner 1986, Campbell et al 1990); production management (Daly and Jones 1980, Daly et al 1985); manufacturing strategies (De Meyer 1988); new product development (Parkinson 1984); planning and control (Horowitz 1980, Reid and Schlegelmilch 1990), small business (Bannock 1976) and

export activities (Schlegelmilch 1986a). Very few researchers have considered marketing strategies and then only as part of a broader study and no specific studies have investigated the marketing effectiveness of British and German organisations. Differences in the marketing approach of companies in the two countries will draw on these studies and will be discussed using the frameworks outlined in Chapter Two.

It is important to note that there are very few empirical studies of British and German companies. Much of the literature is based on case studies or observations. As a result empirical evidence on the characteristics of German companies is sketchy. In some instances the literature is anecdotal (eg. Limprecht and Hayes 1982), although it provides a useful base on which to contruct hypotheses.

4.4.1 Marketing Orientation of British and German Companies

A study by Turnbull and Cunningham (1981) of 800 marketing and purchasing agents in five countries found that British companies were rated, by non-British purchasers, as being poor at marketing. The survey discovered that British companies operating in Europe lack a customer orientation and compete primarily on the basis of low price and "place inadequate emphasis on superior product technology, when marketing in Europe" (p. 26). One particularly interesting finding, however, was that British companies have a higher reputation for technical competence in Germany than in

France and Italy. There are two possible reasons for this. Firstly, British companies recognise the demand for higher standard in Germany and secondly, only the most technically able have been successful in penetrating the German market. The second explanation seems the most feasible as traditionally British companies have turned away from European markets towards the United States and only successful companies then target Europe (Turnbull and Cunningham 1981).

A lack of customer orientation by British companies was also evident in their approach to their customers and new technology. The authors observed that "British companies are reluctant to keep foreign customers informed of new product developments. They also appear to be unable to get their technical staff in close enough contact with customers' technical staff to be able to offer new technical solutions to customers" (p. 31). In addition British companies were seen to be less willing to adapt their products to meet customer demands than their other European competitors. As a result Turnbull and Cunningham (1981) concluded that "British suppliers are less marketing oriented than their competitors in Europe" (p. 33). A study by Schlegelmilch (1986b) of export activity in 1000 British and German mechanical engineering companies confirms this lack of customer orientation in British companies. He goes on to argue that this weakness manifests itself in general in the product policies of British manufacturers and in particular

in product quality and an inability to respond to customer needs.

Further indication of a poor customer orientation in British companies was found in their delivery performance and product reliability. The research by Turnbull and Cunningham (1981) revealed that British managers were aware of the importance of these customer-related activities, yet buyers in the other countries believed that British companies gave the worst service in this area. Although suppliers in the other four countries were not rated that highly, all were considered to perform better than their British counterparts. By contrast German suppliers were found to be particularly strong in technical innovation and the supply of quality products (Turnbull and Cunningham 1981). The researchers found that companies in their sample had a clearer understanding of customer needs and, by working closely with customers, were able to adapt to changing needs effectively.

Other studies, whilst not specifically concerned with marketing, confirm many of the findings of this survey. For example, in an article in the Harvard Business Review, Limprecht and Hayes (1982) highlight a number of key features of German manufacturing organisations. They note, in particular, that German companies place a strong emphasis on building long-term customer relations. This is achieved by meeting customer requirements in terms of product quality and reliability. This view is shared by many other observers

(eg. Lawrence 1980, Real 1980, Parkinson 1984). The commitment to a long-term business perspective is again in evidence in the priority given to the development of long-term strategies, which will be discussed in more detail in Section 4.4.2. As Limprecht and Hayes (1982) note customer orientation in Germany means quality products, delivered on time with a reliable after-sales service.

In a study of new product development in the machine tool industry Parkinson (1984) observed that British companies were poor in developing products and manufactured to a lower quality than the Germans. They were slower to adapt to changing customer requirements and the author takes the view that British manufacturers have lost out by not pursuing product development strategies.

In his research Parkinson (1984) also found that fewer German companies had a formal marketing department, although they did have better liaison with their customers at all levels of the organisation. The author argues that this resulted in better feedback from the marketplace and greater customer involvement, particularly in the new product development process. Research by Simon (1990) confirms this observation, because, although close to the customer, the 39 successful German companies interviewed were found to have a low level of marketing professionalism to the extent that "some have actually never heard of marketing" (p. 7).

British companies, on the other hand, were more likely to have a marketing department, but as Ames (1970) points out this is no guarantee of a marketing orientation. Mant (1977), on the other hand, takes the view that the weakness of British industry is not in marketing but in poor product quality. Whilst few would dispute the latter weakness empirical research suggests that British companies are also poor at marketing (eg Turnbull and Cunningham 1981, Doyle et al 1986).

Although fewer German companies appear to have marketing departments, Lawrence (1980) argues that marketing is still an important activity in German companies. This view is supported by Trevor et al (1986) who also observe that marketing, in German companies, integrates well with other business functions. Meissner (1986) explains that the Germans have not adopted the American notion of marketing and that it is important to understand the different paradigm which has developed in Germany. He argues that marketing in Germany is embedded in the idea of the *'Meister'* (master craftsman) which explains the strong emphasis placed on product quality in German companies with the result that "competition is ... concentrated on the quality of production, which corresponds to the craftsman's tradition of efficiency" (p. 22).

Few would disagree with the conclusion reached by Limprecht and Hayes (1982) and Lawrence (1980) that the success of German manufacturers is dependent more on quality products

than marketing strategies. Simon (1990), however, observed that successful medium-sized German organisations do not strive to be either product- or market-led but "manage to integrate market and technology as equally important driving forces" (p. 6). This suggests, therefore, that German companies display a higher level of marketing orientation than their British counterparts.

4.4.2 Marketing Strategies of British and German Companies

Strategic Objectives

Evidence suggests that managers in both countries attach a high level of importance to growth and profitability. It is argued that British managers do so because they see them as a way of attracting high calibre people to the company and of maintaining morale as they are a good measure of efficiency. The Germans, on the other hand, give "particularly strong emphasis to the argument that growth has a pay-off for product and capital market position and for internal economies. The West German managers therefore tend to attach market-oriented benefits to growth" (Budde et al 1982, p. 16). In addition Trevor et al (1986) point out that German companies tend to pursue strategies based on moderate expansion rather than high growth. This highlights a difference in attitude between managers in the two countries which potentially influences the objectives and strategies they pursue. As Lawrence (1980) sums up "British managers think industry is about making money: Germans that

it is about making three-dimensional artifacts" (p. 142). This in itself clearly influences the choice between short- and long-term strategies.

Manufacturing companies in Germany are largely product-oriented. The education system in Germany serves to reinforce the orientation that success can best be achieved through the design and production of quality, reliable products (Lawrence 1980, Parkinson 1984). British companies, on the other hand, have frequently been accused of adopting a financial orientation (Lawrence 1980). This is reflected in a strong emphasis on short-term profitability which has been observed by Doyle et al (1986), Budde et al (1982) and Doyle (1987). Budde et al (1982) attempt to explain Britain's pre-occupation with short-term profitability by saying that British companies have to rely more on retained profits as a source of funds for investment whilst German companies rely more on long-term bank loans.

This does not mean that German companies are unconcerned with profitability. The literature suggests, however, that they are prepared to forgo short-term gain in order to ensure long-term performance (Limprecht and Hayes 1982, Simon 1990). Lawrence (1980) explains that profitability as an objective in German organisations is less pronounced than in Britain because, although they like to make profits, they expect them to be the outcome of producing and selling quality products. In a study of 210 British and German companies Reid and Schlegelmilch (1990) found a significant

difference between companies in the two countries in their assessment of profitability. Of particular interest is that managers of independent German companies were significantly more likely to have no profit assessment at all. This is a clear indication of the low level of important placed on profits as a measure of performance by these companies. This is contrary to the view espoused by Meissner (1986) who argues that because medium-sized German companies want to defend their independence they are "more closely oriented to the goal of guaranteed profitability" (p. 25).

An interesting observation made by Limprecht and Hayes (1982) is that German companies have a clear understanding that to survive they have to operate successfully overseas. Real (1980) also argues that because of a high level of dependency on exports German manufacturers are more rigourous in their pursuit of international strategies. Lawrence (1980), however, notes that in spite of this, few German organisations have actively invested overseas, unlike their Japanese competitors. This appears to be contradicted by Simon (1990) who observed that nearly 95% of German companies in his sample had their own overseas subsidiaries.

Strategic Focus

Limprecht and Hayes (1982) comment that the reason for the success of German manufacturing companies is not so much the marketing strategies they pursue but the quality of the products they manufacture. It is clear from earlier

discussions that German companies seek to achieve their objectives, almost exclusively, by producing quality products and their closer cooperation with customers gives them a good understanding of changing needs. It is interesting to note, however, that unlike the Japanese, German companies appear to focus on product improvement strategies rather than on innovation (Trevor et al 1986). It is perhaps not surprising, therefore, that German companies are seen to be strong in niche marketing (Meissner 1986).

The literature suggests that a high proportion of British companies adopt a defensive approach to their key markets. Doyle et al (1986) found, in the British companies interviewed, that 86% placed great importance on cost cutting and improving productivity as a means of obtaining higher levels of profitability. Furthermore, the researchers observed that many British companies were prepared to cut investment in both marketing services and new product development in order to achieve their profit objectives.

Customer Targets

Little is known about the market segmentation and customer targets of German companies but, given their strategic objectives and focus, it would appear that they have identified particular needs in the marketplace with regard to quality and reliability. Empirical studies of British companies suggest that a different approach is being adopted. Doyle et al (1986) found that nearly half of the

British companies they interviewed were unclear about the types of customers in the market and what their needs were. British companies typically did not segment their markets and where they did they were often positioned at the cheaper end of the market.

Competitor Targets

Little is known again about German companies in this respect except that the literature indicates that most German organisations do not compete on price but on the basis of product quality and reliability (eg. Lawrence 1980, Parkinson 1984, Limprecht and Hayes 1982, Simon 1990). British companies, on the other hand, have been found to emphasise price as a competitive issue.

An interesting finding of the Doyle et al (1986) study of British and Japanese companies was that only 20% of Japanese companies operating in Britain saw European products as their major rivals.

Differential Advantage

It is widely accepted that the key competitive advantage of German manufacturers lies in their ability to develop and manufacture quality products (eg Limprecht and Hayes 1982, Lawrence 1980, Real 1980). Meissner (1986), points out, however, that the willingness of German companies to offer problem solving capabilities to their customers is another

key source of competitive advantage. Studies of British companies reveal that advantage is sought in terms of price or even by being 'British made'. The Doyle et al (1986) study, however, highlights that many British companies feel that they are poor at differentiating themselves from the competition. Weaknesses are identified in several key areas including R & D, design, process development and cost reduction. If this is the case, when comparing British companies with their German counterparts it is hardly surprising, that in industries like the machine tool sector, that Britain is losing out heavily to Germany.

Marketing Mix

The marketing decisions of the Germans appear to be consistent with their strategic focus. As Parkinson (1984) acknowledges "West German companies [have] given greater attention to the technical quality of their products rather than to price as the major dimension of competition" (p. 57). This contrasts with British companies who appear to be more concerned with financial performance than technical superiority reflected in the stronger emphasis placed on price as the key element of the marketing mix. Meissner (1986), however, is critical of the pricing strategies of German companies pointing out that many German managers adopt a short-term perspective on pricing thus sacrificing market share gains in the longer term.

Selling as a function appears to play a key role in companies in both countries (eg. Lawrence 1980, Doyle et al 1986). Given the nature of the machine tool industry it is reasonable to assume that this will be the case in this research. Lawrence (1980) sums up the approach of the Germans to marketing by noting that

> "German companies expect to sell on the basis of quality, delivery performance and after sales service. And they expect these virtues to speak for themselves, with maybe a little help from a technical brochure. For the most part German goods are not competitive in price terms anyway, so there is little point in agonising over pricing policy and distribution channels. The German approach is to try to make them better than anyone else does in the (generally fulfilled) hope that they will then be purchased. Sales is a tangible and acceptable activity, but Marketing is too indirect to be as acceptable to Germans as it is to Americans" (p. 94).

4.4.3 Organisational Characteristics of British and German Companies

Stereotypes exist for both British and German organisations. German companies are traditionally seen as being fixed hierarchical structures with formal planning and control systems. British companies meanwhile are viewed as being more informal and ad hoc. Some of these stereotypes are broken down when empirical studies are considered.

Structure

There is a general consensus in the literature that German companies are less formal than the stereotypes would suggest. Locke (1989) and Trevor et al (1986) report that German organisations tend to be flatter and largely informal. In spite of an emphasis on informality, though, the literature suggests that structures are tight and there is a high degree of integration between management functions with the result that everyone works together as a team for the good of the company (see Locke 1989, Limprecht and Hayes 1982, NEDO 1981, Parkinson 1984). By contrast Horowitz (1980) notes that British companies operate much looser structures with the benefit of greater organisational flexibility. Child et al (1983), however, contradict this finding with the view that managers jobs in British companies are highly formalised and thus less flexibility exists. British companies are typically organised along traditional functional lines frequently incorporating a marketing department (Parkinson 1984, Doyle et al 1986).

Systems - Planning and Control

The literature on planning and control systems in British and German companies does not suggest the same consensus as with structure. A comprehensive study of management, production and marketing planning and control in 52 matched British, German and French companies by Horowitz (1980) revealed that most British companies (72%) had been engaged

in long-range planning for some time. Although more German companies (77%) were engaged in long-term planning it typically covered fewer years and was less formalised. The author observed a further difference between the two countries in that planning in Britain tended to be more strategic whereas in Germany it was more operational. Locke (1989) reports the findings of research conducted by Thanheiser which supports the findings relating to German companies. The study revealed that most German companies have no strategic planning systems at all and that those that do do not perform the task well. The study noted that, although German managers were aware of such planning techniques, they did not have much faith in them such that it was concluded that German success cannot be attributed to the design and implementation of advanced planning systems.

By contrast Horowitz (1980) found that German companies adopted a highly detailed and formalised approach to short-term planning which would certainly support the view that planning in Germany is more operational. The results obtained by Horowitz (1980) contradict other studies of planning in companies in the two countries. Freeman (1979), for example, comes to the opposite conclusion noting that German managers place a strong strategic emphasis on product design and development. Meanwhile British companies were found to be more operations oriented with long-term planning less well developed than in German companies. Lawrence (1980) also criticises British companies for a poor record in long-term planning and attributes it to the restrictive

lending practices of the banks. Horowitz (1980) too expresses concern for the strong focus on financial planning in British companies. In addition Parkinson (1984) points out that there are higher levels of worker participation in the planning process in German companies.

Support for Horowitz' findings can be found in the study by Reid and Schlegelmilch (1990) which discovered that German companies were surprisingly weak in their commitment to planning and in particular strategic planning. By contrast British companies were found to be more active in strategic planning. Bessant and Grunt (1985), however, do support Horowitz' (1980) finding that German short-term planning is very thorough, but add that this is because it forms a firm base on which to build long-term plans.

Planning alone is not enough and the appropriate control mechanisms have to be developed. There is broad consensus in the literature that control procedures in German companies are more stringent (eg. Child 1981, Horowitz 1980) and that they are more directed towards corrective action (Trevor et al 1986). Meanwhile control in British companies is seen to be looser with procedures developed to provide guidance rather than being geared towards corrective action (Horowitz 1980). Although Goldsmith and Clutterbuck (1984) did observe that successful British companies did have tighter control systems, Reid and Schlegelmilch (1990) have found that both planning and control in British companies is more formal. However, they believe that this leads to "an inflexibility

which in turn is a hindrance to the process of winning market share" (p. 36).

Style

Lane (1989) points out that style is shaped by the level and rate of industrial development, political culture of the country and the social background, particularly education, of the managers; and although Britain and Germany face similar opportunities and threats, management in the two countries "continue to interact in nationally distinctive ways to cope with these challenges" (p. 292). This means that even though management tasks tend to be broadly similar in both countries style is likely to differ.

Team-work appears to be more common in German companies with emphasis on a higher degree of functional integration (Locke 1989, Limprecht and Hayes 1982, Parkinson 1984), although this is disputed by Meissner (1986). In addition there are higher levels of cooperation between management and the workers which is no doubt a reflection of the legal structure of the organisation (see Section 4.3.1). As a result communications at all levels are good with a tendency towards informality (Child 1981, Millar 1979). Meissner (1986) argues that the communications policy of most German organisations transfers across to their communications with customers thus allowing better relationships to develop with key customers.

Doyle et al (1986) discovered that British companies tend towards hierarchical organisational structures which encourage greater formality in communications, a view shared by Reid and Schlegelmilch (1990).

Staff and Skills

There appears to be little difference between British and German companies in terms of management training. Lawrence (1980) notes, for example, that German companies do not take management training seriously and many observers acknowledge that in-house training plays a very important role (see Lawrence 1980, Trevor et al 1986, Handy 1987). Equally British companies are accused of doing very little or no management training (eg. Parkinson 1984, Handy 1987). Earlier discussions point to the key difference being in educational standards as a whole.

Shared Values

Locke (1989) argues that the German education system is geared towards instilling the desire to produce the best products, which translates into a sense of shared values throughout manufacturing organisations. As a result everyone throughout the organisation has a clear understanding of the need for the company to be competitive (NEDO 1981). The involvement of both workers and management in the planning process in German companies is also likely to result in a greater sense of purpose throughout the organisation

(Parkinson 1984). Simon (1990) argues that core values are an exception in German companies, although most employees know what the values should be.

4.5 Hypotheses

The above discussion of the characteristics of British and German companies imply the following, not always consistent, propositions which will be tested in the course of this research:

Marketing Orientation

H2 German companies, although primarily product-led, are more marketing oriented than their British counterparts (Turnbull and Cunningham 1981)

Strategy

HS1 German companies place greater emphasis on longer term customer-oriented strategies than on short-term financial gains (Limprecht and Hayes 1982, Turnbull and Cunningham 1981, Simon 1990)

HS2 The marketing strategies of German companies seek a competitive advantage through product quality and reliability (Parkinson 1984, Lawrence 1980)

HS3 German companies give a higher priority to the product element of the marketing mix, whereas the British companies compete on the basis of price (Parkinson 1984)

Organisation

HO1 German organisation structures are more informal with a focus on serving the customer (Parkinson 1984)

HO2 Planning and control systems in British companies are more formal with greater emphasis on long-term planning (Horowitz 1980, Reid and Schlegelmilch 1990)

HO3 German managers adopt a more informal approach to communications with greater emphasis on team-work (Locke 1989, Meissner 1986)

HO4 German managers are better educated than their British counterparts but there is little difference in the level of management training received between the two countries (Handy 1987, Lawrence 1980, Trevor et al 1986)

HO5 There is a greater flow of information in German organisations with the result that motivation is high instilling a shared belief in the organisation and its objectives (NEDO 1981)

5.0 METHODOLOGY

5.1 Introduction

This chapter describes the methodology employed to test the propositions developed in chapters two and four. It discusses the sample selection, probable sampling errors and the data collection methods employed. The second part of the chapter outlines the various statistical techniques used, how they work and the situations in which their use is appropriate.

5.2 Sample Selection

Previous studies of management activities in British and German companies have adopted either an in-depth qualitative approach (eg. Parkinson 1984, Sorge and Warner 1986, Millar 1979) or a quantitative approach (eg. Schlegelmilch 1986a, Turnbull and Cunningham 1981, Reid and Schlegelmilch 1990). The aim of this research was to combine the two approaches. The use of a semi-structured questionnaire allowed the researcher to obtain information relating to performance, marketing strategies and organisation which would be comparable across manufacturers in the two countries. In addition, time permitting, the approach allowed for more detailed qualitative information to be gained in support of the quantitative data. The nature of the industry, the size of many of the companies interviewed and the subsequent difficulties experienced in accessing German companies meant

that interviews with more than one respondent in each organisation would be difficult. The methodology adopted in this study has already been used successfully elsewhere (eg. Doyle et al 1986, Doyle et al 1989).

The research involved a comparative study of British and German machine tool manufacturers. A list of all European manufacturers was obtained from the European machine tool trade association (CECIMO). This list was supplemented by a list from the British Machine Tool Technologies Association (MTTA). These lists included all those organisations which were members of the appropriate trade association in their respective countries. CECIMO was estimated by the MTTA to include upwards of 90% of all British and German machine tool manufacturers. The population was, therefore, defined as all British and German machine tool manufacturers who were members of CECIMO. From this list 187 German and 80 British organisations involved in the manufacture of either metal-working or metal-forming machine tools were identified. (A comparative study of the structure of the industry has already been covered in the previous chapter). Given the time and financial constraints of the research not all companies could be approached, so a sample was drawn from this population.

Given the structural differences in the industries in the two countries a stratified sample was drawn in order to reduce bias (Green and Tull 1975). The stratified sample was constructed based on company size. The number of employees

was used as a measure of size in the absence of complete data on company turnover and profitability. This stratification resulted in the breakdown of British and German companies shown in Table 5.1. Within each size range a systematic random sample was drawn. This approach was adopted so that companies across all size ranges could be included in the sample thus increasing the representativeness of the sample (Green and Tull 1975). Taking the breakdown by size for the total industry in the two countries 20 British and 20 German companies were selected (Table 5.2).

Table 5.1 Machine Tool Manufacturers Stratified by Number of Employees

	No. Employees	No. Companies	% Total
Britain	0 - 199	64	80
	200 - 499	12	15
	500 or more	4	5
Germany	0 - 199	91	50
	200 - 499	51	27
	500 or more	45	24
Total	0 - 199	155	58
	200 - 499	63	24
	500 or more	49	18

Source : CECIMO (1989), Kompass (1989), Mittelständische Unternehmen (1989), Kompass Deutschland (1989)

The trade associations in both Britain (MTTA) and Germany (VDW) were approached to ask for their support for the research. The MTTA endorsed the research in a letter (Appendix A). Unfortunately support from the VDW was not forthcoming (Appendix B). CECIMO, the European association also declined to support the study, because it only acts as

a coordinator between the trade associations in the individual countries (Appendix B1).

Table 5.2 Sample Size for British and German Machine Tool Manufacturers

No. Employees	No. Companies
0 - 199	12
200 - 499	5
500 or more	3
Total	20

The Managing Directors of the sample companies were initially approached by letter in their respective languages asking them to participate in the research (Appendices C1 and C2). British companies were also sent a copy of the letter from the MTTA supporting the research. The letters were followed up by a telephone call asking the Managing Directors for their cooperation. As an inducement to participate, all companies were guaranteed that their responses would be confidential and they were promised a copy of the findings of the research.

Of the 20 British companies approached only four declined to be interviewed citing lack of time or interest as their reasons for non-participation. A full list of those companies taking part in the research can be found in Appendix D. Two companies asked for their names not to be disclosed. Interviews with the British companies were conducted between March and May 1990.

Response from the German companies, however, was disappointing with only one of the initial twenty approached agreeing to an interview. In follow up telephone calls the reasons for non-response were established (Table 5.3). In some cases the Managing Directors or their secretaries were positively rude with one putting the telephone down on the researcher in the middle of the conversation. In one case the person to whom the Managing Director recommend the researcher speak did not appear to exist! Even more surprising were the two companies that had a permanent answering machine on the telephone. All telephone calls were conducted in German so a lack of understanding of the objectives of the study and the benefits to participating companies was not felt to be a contributing factor to the low response rate.

A possible reluctance by the German manufacturers to participate in a study by a British university was detected. A German university was, therefore, approached to explore the possibilities of a collaborative approach to the study. Professor Müller-Merbach at the Universität Kaiserslautern agreed to assist in the research. Fully briefed on the objectives of the study the professor, together with a research assistant, contacted both the German trade association (VDMA) and the sample companies. The following are extracts from a letter from Professor Müller-Merbach, translated from the German. The full letter appears in Appendix E.

Table 5.3 German Non-Response

Reason for Non-Response	Frequency	%
No Interest	5	26.3
No Time	8	42.1
Unavailable	4	21.1
Answering Machine	2	10.5
Total	19	100.0

"In this case I felt a certain (unspoken) aversion [by the companies] to foreign interviewers. They seemed to assume that the chance of them receiving results was slimmer than from empirical studies conducted by universities in their own country. In addition there may also have been a fear that giving away valuable information may have more benefit to their overseas competitors"

"In any case [our] attempts [to contact companies] were almost totally without success. I found no willingness either within the VDMA or individual companies to cooperate"

A final attempt to obtain information from German machine tool manufacturers was made by approaching those companies with subsidiaries in Britain. It was anticipated that the British subsidiaries would be a useful proxy for the marketing strategies of their parent companies. A list of these organisations was drawn up from the membership of the MTTA in Britain. In total 21 such companies were identified. The Managing Directors were contacted by letter and telephone requesting their cooperation. Confidentiality of

individual responses was assured. Because all of the subsidiary companies were members of the British trade association the supporting letter from the MTTA could be used as a way of increasing response rate.

Of the 21 companies approached 11 agreed to be interviewed. Those not wishing to participate said that they were either too busy or simply not interested in the study. A full list of the participating subsidiary companies can be found in Appendix D. Over 60% of the subsidiary companies then agreed to put the researcher in contact with their parent company in Germany. Two of the companies even offered to set up the interviews. In only two cases did the parent company refuse to participate in the study. This resulted in eight interviews with German companies. These were conducted, in German, during August and September 1990. During this time a machine tool exhibition (AMB 90) was being held in Stuttgart. The researcher visited the exhibition and was successful in obtaining further interviews with the senior managers of four German machine tool manufacturers. Together with the one company from the original sample this meant that a total of 13 interviews were conducted with German organisations.

The difficulties experienced in obtaining interviews with German manufacturers does not appear to be unique to this research. A leading German professor encountered similar problems when studying the determinants of export success in German organisations. Simon (1990) found a reluctance on the

part of German managers to participate in his research and he received reactions like "We are not interested to reveal our success strategies and to help those, who have been dormant during the years" (p. 3). Of the 39 companies that did cooperate with his study Simon (1990) still detected a reluctance to answer specific questions.

5.3 Data Collection

Data for the study were finally obtained from personal interviews with senior managers in 40 organisations in Britain and Germany. Table 5.4 shows the breakdown of participating companies.

Table 5.4 Breakdown of Participating Companies

Nationality	Frequency	%
British	16	40.0
German	13	32.5
Subsidiaries	11	27.5
Total	40	100.0

A semi-structured questionnaire was used to gather information on performance, marketing objectives, strategies and organisational characteristics. This approach was adopted so as to broaden the scope of the information gathered and to enable the researcher to check for bias and misunderstanding in the responses. Three questionnaires were actually used. The questionnaire developed for the British companies was translated into German and re-translated to check for any misinterpretations (Appendices F1 and F2). The

subsidiary questionnaire was very similar to the British one, although questions relating to new product development were omitted. In addition, subsidiaries were asked about their relationship with their parent companies (Appendix F3). The questionnaires used enabled both qualitative and quantitative data to be collected which would be consistent and comparable across companies.

5.4 Sampling Errors and Bias

There are a number of possible sources of sampling error and bias in this research:

Sample to Population Differences - the rationale for using a stratified random sampling method was to increase the representativeness of the two samples. As Table 5.5 shows this objective has not been achieved. Although the sample frame for the British machine tool industry was representative of the population, Table 5.5 shows that fewer smaller companies agreed to participate. The main reason for this was lack of interest in the research.

In the German sample there is a clear bias towards larger organisations. The reason for this is likely to be a direct result of the use of subsidiaries as a means of access to the German manufacturers, as only larger, more successful companies are likely to set up overseas operations. The further use of convenience sampling whilst in Germany is also likely to be a contributing factor.

Table 5.5 Comparison of Sample with Population

	No. Employees	Population	Sample
Britain	0 - 199	80%	50.0%
	200 - 499	15%	37.5%
	500 or more	5%	12.5%
Germany	0 - 199	50%	23.1%
	200 - 499	27%	7.7%
	500 or more	24%	69.2%

Non-Response Error - the non-response by smaller machine tool companies in both countries has led to a bias, particularly in the German sample, towards larger companies. It is, therefore, more difficult to assess the impact of size on the formulation of marketing strategies.

Use of Subsidiaries - The inclusion of subsidiaries in the sample frame was driven by necessity. It was anticipated that they would provide a useful proxy for the marketing strategies of their German parents. The fact that many of them put the researcher in contact with their parents allowed for additional analysis examining whether the subsidiaries resemble the British or German sample more closely. It also allowed some discussion of the relationship between German manufacturers and their British subsidiaries. It should, however, be recognised that the inclusion of the subsidiaries in the analysis adds further bias to the results of this study.

Because so little empirical research has been conducted into the marketing strategies and organisation characteristics of German companies standard statistical tests were used in the

analysis. Such tests assume that the samples of British, German and British subsidiaries of German manufacturers are random and normally distributed. In interpreting these statistics the researcher must treat any inferences with caution in that the assumptions behind the tests are clearly not met. The findings cannot be considered to be representative of the machine tool industry as a whole.

5.5 Choice of Data Analysis Techniques

A number of analytical techniques were used to analyse the data in order to explore the differences and similarities between the marketing strategies and organisational characteristics of British and German machine tool manufacturers. The choice of analytical techniques was influenced largely by the small sample size and the propositions developed in Chapters Two and Four. The computer programme SPSS^{x} was used throughout the analysis to obtain results. A discussion of these statistical techniques is given below.

5.6 Contingency Tables and the Chi-square Test

Crosstabulations or contingency tables allow a comparative study of the data and the relationships between variables. Given the three distinct groups of companies under investigation contingency tables enabled the researcher to explore the differences between those groups. Combined with the chi-square test the contingency tables also offered a

way of testing the independence of the groups and thus the research propositions.

Although simple and flexible analytical techniques, contingency tables and the chi-square test have their limitations. As Green and Tull (1975) point out sample size is important to the quality of approximation and power of the test. They recommend that the chi-square test should only be used with expected frequencies greater than five in each cell of the contingency table. The SPSS^{x} package automatically calculates a Yates' corrected chi-squared statistic, but given the small sample size in this research the criteria noted above still cannot easily be met.

Much research has been conducted into the validity of the chi-square test with small sample sizes and Bryman and Cramer (1990) noted that, provided the contingency tables incorporated three or more categories, expected frequencies could fall below five. However this should occur in no more than 20% of the cells. Unfortunately again these criteria could only be partially met in the current research. Research by Siegel (1956) suggest that for sample sizes of between 20 and 50, with expected cell frequencies of less than five, the Fisher exact test should be used. The SPSS^{x} statistical package, however, only calculates the Fisher exact test for studies with fewer than 20 cases in a 2 x 2 table (SPSS 1988). However, work carried out by Lewontin and Felsenstein (1965) showed that many previous assumptions about chi-square tests did not hold true. They concluded

that "the 2 x n table can be tested by the conventional X^2 criterion if all expectations are 1 or greater" (p. 31).

An alternative to that suggested above would be to collapse some of the data leaving fewer cells. Everitt (1977), however, argued that this procedure could result in the loss of information which "may detract greatly from the interest and usefulness of the study" (p. 40).

In spite of this wealth of literature supporting the use of the chi-square test with small samples the use of three categories within the contingency tables still resulted in expected frequencies below one in many cells. It was, therefore, necessary to collapse the data in order to analyse the tables. Two options existed by which this could be achieved. Either combine scale ratings or join two groups together. Because the subsidiaries were intuitively considered to resemble their parent organisations they could, for the purpose of further analysis, be combined with their German parents. Although it would be possible to collapse the groups in this subjective manner it was felt more appropriate to perform an objective analysis. A discriminant analysis was, therefore, performed with the aim of determining whether it was possible to classify the subsidiaries as similar in characteristics to the German sample. This process is discussed in more detail in Chapter Six.

5.7 Multiple Discriminant Analysis

Multiple discriminant analysis is a statistical technique which allows the study of differences between two or more groups with respect to several independent variables. It also provides a way of classifying cases into previously defined groups. As such it can be seen as being both a kind of "profile analysis and an analytical predictive technique" (Hair et al 1987 p. 79).

5.7.1 Assumptions Underlying Discriminant Analysis

The key requirements for discriminant analysis are that two or more mutually exclusive groups exist which are presumed to differ on a number of independent variables (measured on the interval scale). The technique assumes that the sample being analysed is drawn from a normally distributed population, although, Lachenbruch (1975) has noted that an analysis is not seriously effected if this assumption is violated. In addition it is assumed that the covariance matrices of the two groups are equal allowing for the computation of significance test and the probabilities of group membership.

5.7.2 Objectives of Discriminant Analysis

Multiple discriminant analysis was considered to be an appropriate statistical technique for this study because of its ability to:

i) determine whether statistically significant differences exist between the profiles of two a priori defined groups

ii) classify cases into groups based on their scores on certain variables

iii) to identify which independent variables account for the most difference between the groups

The objective of discriminant analysis is to weight and linearly combine the discriminating variables so as to maximise between group variance. This results in a single discriminant score for each case. The mean of all the cases in each group is then calculated giving two centroids. By comparing the group centroids it can be seen how far apart the groups are based on the function.

5.7.3 Choice of Method

A step-wise procedure was used to enter the independent variables into the discriminant function. A step-wise method is particularly useful as it enters the variables one at a time taking the best discriminator first. The first variable selected is then matched with each of the others and the second variable selected is the one best able to improve the discriminating power of the function. This process continues until either all variables have been entered or until the addition of further variables does not contribute significantly to the significantly to the discrimina

method is particularly useful when a large number of variables are being analysed as variables which are not good discriminators, because the group means are not very different, are eliminated. This leaves a reduced set of variables which is often better than the original set of variables. (Klecka 1980). However, to obtain optimal advantage from this procedure larger sample sizes are desirable.

The statistical package SPSS^X offers a number of step-wise entry criteria. Wilks' lambda was chosen for this analysis because it considers "both the differences between groups and the cohesiveness or homogeneity within groups" (Klecka 1980 p. 54).

5.7.4 The Validity of the Derived Function

A good discriminant function is one which maximises between-group differences and minimises within-group differences. Klecka (1980) suggests a number of ways of assessing the substantive utility of the discriminant function:

Eigenvalue - a measure of the relative importance of the function which considers the total variance in the discriminating variables.

Canonical Correlation - a measure of association between the discriminant function and the variables defining group membership.

Wilks' lambda - an inverse measure of group differences over several variables. It is the proportion of total variance in the discriminant scores not explained by the differences between groups. It is less useful than the first two measures, but it can be converted into a test of significance.

Test of Significance - achieved by transforming Wilks' lambda into the chi-square statistic, SPSS^X automatically computes the exact significance level of the discriminant function.

A function which is a good discriminator will have a high eigenvalue and canonical correlation, but a low Wilks' lambda. It is generally accepted that a function is a good discriminator if the statistical significance is .05 or better. The test of significance of the function, however, does not give an indication of the efficacy with which the independent variables discriminate between the two groups (Morrison 1969). It does not give an indication of the predictive accuracy of the function. The construction of a classification (confusion) matrix enables further assessment of the discriminating power of the function.

Prior to the classification stage it is necessary to develop the criterion against which each company's discriminant score is to be measured. Individual company's scores can then be compared with the cutting criterion score to determine into which group they should be classified. This

enables actual group membership to be compared with predicted group membership with the resultant calculation of the percentage of companies correctly classified. In this case the two groups are of unequal sizes so the optimum cutting score is calculated using a weighted average of the group centroids (see Klecka 1980).

The question of the predictive accuracy of the discriminant function is crucial. If the observed percentage of cases correctly classified is significantly larger than would be expected by chance the coefficients in the function can be interpreted in order to determine which variables are the best discriminators. It is, therefore, necessary to determine the percentage of cases that could be correctly classified by chance. Two groups of equal size would return a percentage of cases correctly classified of 50%. For two groups of unequal size there are two alternative methods available. Should the researcher wish to maximise the percentage of cases correctly classified it is appropriate to use the maximum chance criterion given below:

$$C_{max} = \max (p, 1 - p)$$

where

p = proportion of cases in group A

1 - p = proportion of cases in group B

The larger of the two proportions is then taken to be the figure against which the observed percentage of cases correctly classified is assessed. Morrison (1969), however, pointed out that it is usual to classify some of the cases

into the smaller group so he suggest that the proportional chance criterion is a more appropriate method:

$$C_{proportional} = p^2 + (1 - p)^2$$

where

p = proportion of cases in group A

1 - p = proportion of cases in group B

Although the two criteria provide a useful measure against which the percentage of cases correctly classified can be compared Frank et al (1965) have warned against a potential bias in the predictive accuracy of the discriminant function. They noted that an upward bias in the predictive accuracy is likely to occur in instances where the cases that are used to derive the function are the same as the cases being classified. Hair et al (1987) recommend that "classification accuracy should be at least 25% greater than that achieved by chance" (p. 90). The only real way, though, of trying to limit the bias in the predictive accuracy of the discriminant function is to validate the analysis (see 5.7.6)

If the discriminant function is statistically significant and the predictive accuracy acceptable the function can be interpreted.

5.7.5 Interpretation of the Discriminant Function

The interpretation phase of the analysis involves two stages. Firstly the discriminant function is examined to

assess the relative importance of each independent variable in discriminating between the groups. Secondly the group means of the discriminating variables are examined in order to profile the differences between the groups.

By using a step-wise analysis procedure the relative importance of individual variables can be assessed, because those not making a significant contribution to the discriminant function are eliminated from the analysis.

In assessing the contribution of individual variables to the discriminating power of the function it is common to consider the size of the standardised discriminant coefficients. Variables with larger coefficients contribute more to the discriminating power of the function than variables with smaller values. The sign of the coefficient simply shows whether individual variables are making a positive or negative contribution to the function.

Perreault et al (1979) have pointed out though that this approach can be misleading because where two variables are highly correlated their contribution to the discriminant function is shared. As a result their standardised coefficients may be smaller than if only one of the variables is used. Alternatively one variable may take all the "weight" leaving the other with a very low coefficient. To overcome this limitation Morrison (1969) recommended that if two variables are highly correlated (ie r = .95) then

only one of the variables should be included in the analysis.

Given the potential of misinterpretations from such an approach Perreault et al (1979) have recommended the use of discriminant loadings. These determine the relative importance of individual variables to the overall function. Discriminant loadings or structure coefficients are simple bivariate correlations so are unaffected by relationships with other variables. As a result Klecka (1980) concluded that structure coefficients are more meaningful in the interpretation of the derived discriminant functions than standardised discriminant coefficients. This research will, therefore, consider the structure coefficients when interpreting the discriminant analyses.

Once the independent variables which discriminate best between the groups have been identified the characteristics of the groups can then be profiled. This phase of the analysis compares the means of the two groups across those variables which were significant discriminators. From this the key differences between the two sets of companies can be identified and profiled.

5.7.6 Validation of Discriminant Analysis

As discussed above there is a likelihood of bias in the results of a discriminant analysis where the cases used to derive the function and those classified are the same. It

is, therefore, necessary to validate the findings of the analysis. Issues of validation become even more important when the sample size is small.

The most common validation method is the split-sample approach discussed by Crask and Perreault (1977). However, with small sample sizes such an approach is impractical because, by splitting an already small sample, the discriminant function would be rendered less reliable. The alternative approach, therefore, is that suggested by Lachenbruch and Mickey (1968). Known as the U-Method this validation method adopts a sample reuse procedure. The discriminant function is derived by omitting one of the sample companies. The function is then used to classify all the companies. By repeating this procedure for all companies the number of misclassifications can be calculated. As Lachenbruch (1975) pointed out "this gives an almost unbiased estimate of the actual expected error rate" (p. 32).

5.8 Cluster Analysis

Cluster analysis is used in this study for two reasons. Firstly to subdivide the original sample frame into groups of similar companies and secondly to test propositions relating to both successful and less successful companies and British and German manufacturers.

Cluster analysis allows the researcher to form clusters such that the members of one cluster are similar to each other, but such that different clusters are as dissimilar as possible. It differs from discriminant analysis in that it actually creates the groups whereas in discriminant analysis the groups are defined in advance.

Cluster analysis has been used in a wide variety of applications from animal and plant classification to pattern recognition. With the development of computerised statistical packages cluster analysis has been applied extensively to marketing applications, in particular to aid identification of market segments (Eg. Green 1977, Wind 1978 and Haley 1968). More recently the technique has been used in comparative research such as that conducted by Doyle, et al (1986). In this instance cluster analysis was used to determine whether successful British companies displayed characteristics more similar to Japanese subsidiaries or other British companies. In this research cluster analysis is being used primarily in the same way in order to assess whether successful British companies possess similar characteristics to the German manufacturers or other British companies.

5.8.1 Objectives of Cluster Analysis

The main objective of cluster analysis is to identify and classify groups of similar objects according to some predetermined selection criteria. Successful classification

will show high within-cluster homogeneity and high between-cluster hetrogeneity.

Cluster analysis can be used in a number of ways. Ball (1971) lists seven different uses, but Aldenderfer and Blashfield (1984) narrow them down to four key applications:

i) the development of classifications or typologies

ii) the investigation of conceptual schemes through which objects are grouped

iii) the generation of hypotheses through data exploration

iv) the testing of hypotheses to determine whether groups, identified by other means, do exist

In practice, applications frequently combine these aims. Hair et al (1987) point out that, whatever the application, they all have one common thread which is the "classification according to natural relationships" (p. 295).

5.8.2 Choice of Variables

The choice of variables to input into a cluster analysis is one of the most important steps in the process, but is one of the most difficult to determine. Aldenderfer and Blashfield (1984) state that "ideally variables should be chosen within the context of an explicitly stated theory that is used to support the classification" (p. 20). But, in practice, Everitt (1980) notes that often "the choice

reflects the investigator's judgement of relevance for the purpose of the classification" (p. 48). It is important, therefore, to remember that the selection of variables is itself a categorisation of the data which has no statistical guide-lines.

Within the literature there is some controversy over whether variables should be standardised before being cluster analysed. Where variables have been measured on a variety of scales there is a requirement for standardisation so that each characteristic has equal weight. That is all variables have a mean of zero and standard deviation of one. Kaufmann and Rousseeuw (1990) argue though that where all variables are expressed in the same units there is no need for standardisation. In addition Fleiss and Zubin (1969) argue that standardising the raw data can have a diluting effect on the differences between groups, so that the variables which are the best discriminators are less effective.

For this particular application the variables selected for analysis were those relating to the companies' goals and strategies in order to determine whether strategic groups exist within the samples. These variables were selected because:

i) the discriminant and chi-square analyses showed these variables to be good discriminators between British and German manufacturers.

ii) the similar study conducted by Doyle et al (1986) found that these variables produced an effective cluster solution.

iii) all variables were measured on a five point scale eliminating the need for standardisation.

5.8.3 Similarity or Distance Measures

Once the variables have been selected for analysis it is necessary to determine what measures are to be used to calculate the similarity between the observations. Similarity can be measured by looking at the closeness between pairs of objects or by looking at the distance or difference between the pairs. The latter are the most commonly used measures of inter-object similarity. This thesis, therefore, limits itself to a discussion of the distance measures, however a comprehensive review of all similarity measures can be found in Sokal and Sneath (1963), Anderberg (1973) and Everitt (1980).

A particularly popular distance measure is the Euclidean distance measure which is defined as:

$$d_{ij} = \sum_{k=1}^{p} (x_{ik} - x_{jk})^2$$

where

d_{ij} is the distance between i and j

x_{ik} is the value of the kth variable for the ith object

x_{jk} is the value of the kth variable for the jth object

Despite its popularity the Euclidean distance measure has its critics (Everitt 1980). Where the data under analysis is measured on different scales or the variables have large standard deviations the Euclidean distance is not able to maintain the distances between entities. As the variables in this research were measured on comparable scales the use of the Euclidean distance measure presents no problems. The Euclidean distance measure is also the only similarity measure which can be applied confidently when using Ward's method of cluster analysis (Anderberg 1973). Other distance measures include the Manhattan distance or city block metric; Minkowski metrics and generalised distance measures such as Mahalanobis D^2 (Everitt 1980).

5.8.4 Clustering Techniques

Having determined how to measure the distance between pairs of objects it is necessary to decide which clustering algorithm to use. There is a plethora of clustering techniques which themselves can be classified into two general categories:

i) hierarchical
ii) non-hierarchical

This thesis will limit the detailed discussion of clustering techniques to the hierarchical methods. A full review of all procedures can, however, be found in Cormack (1971) and Ball (1971). Hierarchical procedures are the most frequently used methods for marketing applications. The basic process is to

join pairs of similar objects in an hierarchical or tree-like structure until all objects are grouped into one single cluster. There are two methods by which this can be achieved:

i) agglomerative methods
ii) divisive methods

Agglomerative methods begin with each object as a separate cluster. They are then merged at successive levels until one large cluster emerges. Divisive methods operate in the opposite direction starting with one large cluster which is subsequently partitioned into subsets at each level. The resultant output of these procedures is a tree or dendrogram which shows the "hierarchy of similarities among all pairs of objects" (Romesburg 1984 p. 3). From this dendrogram the researcher can determine the number of clusters which are to be analysed.

Hierarchical agglomerative methods are relatively easy to understand and by definition produce clusters which do not overlap. The main criticism, however, is that once two objects have been linked there is no provision for reallocation. So any objects poorly assigned at an early stage in the process cannot be corrected (Everitt 1980). Another problem associated with these techniques is deciding on the correct number of clusters. As so often with cluster analysis there are no hard and fast rules, although alternatives have been suggested (see 5.8.6).

A discussion follows of the best known agglomerative methods available. The difference between these techniques arises principally from the way the distances or similarities between the latest cluster and all other clusters are computed.

Single Linkage Method - This procedure starts by linking the two most similar objects. The next shortest distance is found and either a three group cluster or a second two group cluster is formed. This process continues until all objects form a single cluster. Problems occur with this method because there is a tendency towards a chaining effect. This has been regarded as a limitation for applications which seek to establish homogeneous compact clusters (Everitt 1974). Where the researchers are looking for optimally connected clusters this chaining effect is not a problem (Jardine and Sibson 1968).

Complete Linkage Method - This procedure is the logical opposite of the single linkage method because any object must display a certain level of similarity with all members of a cluster in order to be included in that cluster. This approach eliminates the chaining effect indicative of the single linkage method, but problems arise regarding the appropriate distance measures to use.

Average Linkage Method - Similar to the two methods discussed above this particular technique measures the average distance between an object and all objects in an

existing cluster. The object is then included in the cluster if the level of similarity between it and the cluster reaches the average value. Like the complete linkage method it is likely to result in overlapping clusters.

Ward's Method - Ward's minimum variance clustering method is commonly used in marketing applications. Like other techniques it starts with each object as a separate cluster finishing with one single cluster containing all objects. At each stage in the analysis every possible combination of clusters is considered and the two clusters resulting in the minimum increase in error sum of squares are merged (Ward 1963). The error sum of squares (ESS) is computed as follows:

$$ESS = \sum_{i=1}^{n} x_i - \frac{1}{n} \left(\sum_{i=1}^{n} x_i \right)^2$$

where

x_i is the score of the ith object

By plotting the error sum of squares against the cluster linkages a dendrogram can be formed from which the optimum number of clusters can be selected.

Ward's method is biassed towards the creation of clusters of similar sizes which is one reason for its popularity in the social sciences. It does, however, suffer from the disadvantage highlighted earlier where once two clusters have been combined they cannot be separated at a later stage

in the analysis. Research has shown that the best measure of similarity to use with Ward's method is the squared Euclidean distance measure (Anderberg 1973).

5.8.5 Choice of Clustering Technique

As there are no firm guide-lines as to the choice of a particular clustering technique researchers must use their own judgement. It should be noted though that different procedures can result in different solutions. Ward's method was, therefore, selected for this research for the following reasons:

i) it is a versatile technique allowing clustering to be performed on a variety of variables

ii) it is easy to apply using the SPSS^{X} statistical package

iii) because it generates distinct clusters relatively even in size it makes the interpretation of results simpler

iv) this approach has proved to be effective in similar applications (Eg. Doyle et al 1986).

5.8.6 Determining the Number of Clusters

There is no one approach for determining the number of clusters to include in the solution. One option is to consider the distance between clusters. The cut off point

can then either occur at a pre-specified value or when distances between successive stages make a sudden jump. This can be carried out by either looking at the agglomeration schedule or the dendrogram. Alternative approaches are based on personal judgement, common sense or an evaluation of two or three alternative solutions resulting in the selection of the best one. Aldenderfer and Blashfield (1984) note that, given the difficulties faced in determining the number of clusters present, it is important to validate the derived cluster solution.

5.8.7 Interpreting the Cluster Solution and Profiling the Clusters

This phase of the analysis involves an examination of the variables used to develop the clusters. This allows the researcher to give a label to the clusters which accurately describes the underlying structure of that cluster. It is common to use the clusters' centroid for each variable as a measure. When clustering on raw data this process is a logical description and is simple to perform. For standardised data the raw scores for the original variables have to be averaged for each cluster. From these means substantive interpretations can be developed to aid the naming of the clusters.

Following on from the interpretation of the cluster solution is the logical step of profiling. This stage involves a description of the characteristics of each cluster in order to explain any differences between clusters. One way of

doing this would be to perform a discriminant analysis. This approach is appropriate where a large data set is being analysed, but for small samples, as in this case, it is less practical. An alternative approach is to examine the means of the variables across clusters and through a one way analysis of variance (ANOVA) establish on which variables the clusters differ significantly from each other. It is important to note that the profiling phase of cluster analysis considers only those variables not used to develop the clusters. It describes the characteristics of the clusters once they have been identified.

5.8.8 Validating the Cluster Solutions

Given the subjective nature of many aspects of cluster analysis it is particularly important to assess the validity of the clusters. Everitt (1980) argues, in favour of validation, because cluster analysis will develop clusters whether or not real groups actually exist within the data. On the subject of validation Everitt (1980) poses three key questions which help researchers to select the best method:

i) Do the same clusters emerge when a different sample is used?

ii) Do the same clusters emerge when different variables are used?

iii) Do the different clusters display differences on variables not used in the analysis?

Each of these questions suggests a different validation method. The first question is normally dealt with by using a split sample approach, where the data set is divided into two random sub-samples. Each subsample is then cluster analysed independently and group membership for all cases observed. Given the already small sample size in this research such an approach would be impractical. Alternatively a replica sample could be cluster analysed and the solutions compared. Thus if the cluster structure is the same across replicas then the solution is likely to have some generality. Given the initial difficulties experienced in obtaining data for this study this approach is also impractical.

Green and Tull (1975) also suggest the application of more than one clustering technique to the same data and compare results across algorithms. A discussion of this approach is presented in Appendix J

Taking the final question differences between clusters were apparent on variables not included in the analysis indicating a valid cluster solution and a full discussion of these results are found in the profiling phase of the analysis in Chapter Seven.

6.0 ANALYSIS OF THE MARKETING STRATEGIES AND ORGANISATIONAL CHARACTERISTICS OF BRITISH AND GERMAN COMPANIES

6.1 Introduction

It has been hypothesized that the marketing strategies and organisational characteristics of companies in Britain and Germany differ in a number of respects. This chapter seeks, through the use of the frameworks outlined in Chapter Two, to define these differences. Firstly, the basic characteristics of the samples are presented followed by a methodological review. Then the key differences and similarities in marketing strategies and organisaticnal characteristics are discussed and finally the degree of marketing orientation of machine tool manufacturers in the two countries is compared.

6.2 Characteristics of Sample Companies

Prior to a more detailed analysis of the differences and similarities between British and German companies it is useful to obtain an overview of the data as a whole. In total 40 personal interviews were conducted with British and German companies (Table 6.1). A full list of participating companies is given in Appendix D. In terms of industry coverage, based on numbers employed, the following analysis relates to 12% of the German and 23% of the British machine tool industry. The British figure represents a higher proportion of the industry because it includes the

subsidiary companies. Although these figures represent a reasonable percentage of the industry in the two countries the bias and sampling errors highlighted in chapter Five must still be recognised.

The profiles of the three sets of companies are presented in Tables 6.2, 6.3 and 6.4. It can be seen that, in terms of size, there is a bias towards larger machine tool manufacturers in the German sample. This bias stems largely from the difficulties experienced in obtaining interviews with a random sample of German manufacturers, and the approach subsequently adopted (see Chapter Five for full details). It is recognised that size could have an impact on the strategies and organisational characteristics of a company, although size alone has not been found, by other researchers, to be a key determinant of success (eg. Hooley and Jobber 1986). The possible influence of size on the findings of this research will be discussed later.

Table 6.1 Breakdown of Interviews by Country

Country of Origin	Frequency	% of Respondents
Britain	16	40.0
Germany	13	32.5
Subsidiaries	11	27.5
Total	40	100.0

A significant difference in ownership between the British and German organisations was found. Given the size profile

of the participating companies it was not surprising to find more publicly quoted companies in the German sample (although two of the companies had only gone public a matter of weeks before the interviews). The largest ownership group in both countries were those operated privately or a family business and, in spite of the size bias in the German sample, the highest proportion of companies were still privately owned. This matches the profile of the machine tool industry observed by Daly and Jones (1980).

Table 6.2 Profile of British Sample Companies

Characteristics	% of Respondents (n = 16)
Ownership	
Subsidiary	31.2
Private/family	43.8
Management buyout	25.0
Size	
0 - 199	50.0
200 - 499	37.5
500 or more	12.5
Respondent	
Managing Director	68.8
Sales Director/Manager	25.0
Marketing Manager	6.2
Turnover (£)	
0 - 9 million	56.3
10 - 49 million	25.0
50 million or more	12.5
no response	6.2
Profitability	
below 0%	6.2
0 - 9%	25.0
10 - 19%	56.3
unknown	12.5

Table 6.3 Profile of German Sample Companies

Characteristics	% of Respondents (n = 13)
Ownership	
Publicly quoted	30.8
Subsidiary	7.7
Private/family	61.5
Size	
0 - 199	23.1
200 - 499	7.7
500 or more	69.2
Respondent	
Managing Director	30.8
Sales Director/Manager	46.1
Marketing Manager	23.1
Turnover (£)	
0 - 9 million	7.7
10 - 49 million	23.1
50 million or more	61.5
no response	7.7
Profitability	
0 - 9%	69.2
10 - 19%	7.7
unknown	23.1

In the case of the subsidiaries it is useful to consider the basis on which they were set up to serve the British market and how long they have been operating. Nearly 55% of them were established in the last ten years in order to improve their parent company's level of service to British customers. Only two of the companies have been established in the British market for over 30 years. It is interesting to note that nine of the subsidiaries were set up by the German manufacturers on greenfield sites and only two came out of existing agency agreements. Given this background it is particularly surprising that so few subsidiaries appear

to pursue the same goals and strategies as their German parents.

The respondent profile shows that in the British companies and subsidiaries over 65% of participants were Managing Directors. This could be a reflection of size, particularly in the smaller British subsidiaries as it was generally the Managing Director who had responsibility for marketing decision-making.

Table 6.4 Profile of Subsidiary Sample Companies

Characteristics	% of Respondents (n = 11)
Ownership	
Subsidiary	100.0
Size	
0 - 199	100.0
Respondent	
Managing Director	72.7
Sales Director/Manager	18.2
Marketing Manager	9.1
Turnover (£)	
0 - 9 million	72.7
10 - 49 million	27.3
Profitability	
below 0%	9.1
0 - 9%	72.7
10 - 19%	9.1
20% and over	9.1

The turnover profile largely reflects the size profile although typically the smaller German companies had higher turnovers than their British counterparts. Taking

profitability into account the British companies, on the whole, reported higher levels of profitability before tax than their German counterparts. There are a number of possible reasons for this which will be explored in the course of the subsequent analysis. It is also interesting to note that very few companies were in a loss-making position.

6.3 Methodological Review

The original aim of this research was to compare the differences in marketing strategies and organisational characteristics of British and German machine tool manufacturers. It was hoped to build a stratified random sample of British and German machine tool competitors, alike in size and market characteristics. However, difficulties in obtaining data from German companies necessitated an alternative approach. Full details of the methodology subsequently adopted are presented in Chapter Five and are only summarised here. Following the refusal of German managers to participate in this research the British subsidiaries of German manufacturers were approached. It was anticipated that these companies might provide a useful proxy for the marketing strategies of their parent companies. After interviewing the subsidiaries a number of respondents were willing to put the researcher in contact with their German parent organisations. This approach would then allow a direct comparison of British and German manufacturers as well as a comparison of British and subsidiary companies. Whilst conducting the interviews with

the German parents the researcher was able to secure interviews with a further four German manufacturers.

This methodological approach resulted in three different samples:

i) British companies
ii) Subsidiaries of German manufacturers
iii) German companies.

Given the small sizes of each of these samples (Table 6.1) and the limitations of the chi-square test it was necessary to collapse some of the data and an analysis of just the German and British samples might exclude potentially valuable data from the subsidiaries. The original reason for interviewing the subsidiaries was that they would reflect the marketing strategies of their German parents. However, all of the subsidiaries were being run by British managers and all claimed to have a high degree of autonomy. Although, intuitively, the subsidiary companies could be combined with the German manufacturers for the purpose of further analysis in order to remove any subjectivity from this process it was deemed necessary to test this proposition. The following hypothesis was, therefore, developed:

HP The British subsidiaries of German machine tool manufacturers display similar characteristics to their German parents.

This hypothesis was tested by conducting a discriminant analysis with the aim of testing whether the subsidiaries could be combined with the German companies.

6.3.1 Discriminant Analysis to Test the Classification of Subsidiary Companies

Before conducting a discriminant analysis it is useful to analyse the differences between the groups by considering the univariate statistics. Table 6.5 presents the means and significance tests of equality of group means for each of the independent variables in the analysis.

Table 6.5 Univariate Statistics Testing for Equality of Group Means

Variable	British		German		F	p
	mean	sd	mean	sd		
GOAL1	4.00	1.21	4.00	1.15	-	ns
GOAL2	4.12	0.88	4.00	0.91	-	ns
GOAL3	3.25	1.73	3.53	1.76	-	ns
GOAL4	4.31	1.08	4.23	0.60	-	ns
GOAL5	3.56	1.59	2.62	1.04	3.41	.076
GOAL6	3.75	1.24	2.62	1.32	5.66	.025
GOAL7	4.06	1.48	2.15	1.40	12.64	.001
GOAL8	4.00	1.15	4.69	0.63	3.75	.063
STRAT1	4.19	0.98	4.08	0.95	-	ns
STRAT2	2.81	1.83	1.77	0.83	3.59	.069
STRAT3	3.12	1.45	3.62	1.44	-	ns
STRAT4	3.19	1.33	3.00	1.58	-	ns
STRAT5	4.75	0.58	4.92	0.28	-	ns
ORGSTR1	3.50	1.37	2.38	1.50	4.37	.046
ORGSTR2	2.81	1.64	3.54	1.45	-	ns
ORGSTR3	4.06	1.18	3.54	0.88	-	ns
ORGAN1	4.50	0.82	4.69	0.48	-	ns
ORGAN2	3.00	1.09	3.38	1.12	-	ns
ORGAN3	3.62	1.31	3.62	0.96	-	ns
ORGAN4	3.81	1.11	4.62	0.51	5.80	.023

The univariate statistics reveal that there are significant differences in the means of British and German machine tool

manufacturers on seven of the variables used to derive the discriminant function. They show that the British companies attach greater importance than their German competitors to the short-term goals of survival, profit maximisation and preventing a decline in market share. Meanwhile, the German managers interviewed place a higher priority on finding a good balance between short-term financial gain and the development of a long-term business. More British companies appear to believe that they are selling products not in direct competition with others.

In organisational terms two key differences in the mean scores emerged. The German manufacturers tend more towards a formal hierarchical organisation structure whereas the British companies have more informal structures. In German companies there would also appear to be more effective inter-departmental cooperation than in their British counterparts.

These differences are particularly interesting as the subsidiaries are excluded from the analysis. However, the later three-way analyses, whilst confirming the differences discussed above, includes the extra dimension of the subsidiaries.

A total of 29 companies, 16 British and 13 German, were fed into the discriminant analysis. A step-wise method, as outlined in Chapter Five, was used to enter the variables relating to company goals, strategies and organisation.

These variables were selected for the analysis because they were considered to be important factors which would discriminate well between British and German companies. A total of 20 variables were used in the analysis (Table 6.5). After 17 steps the tolerance levels were too low for the inclusion of further variables. Table 6.6 shows those variables in the order in which they were entered into or removed from the function along with their associated Wilks' lambda and significance level.

Table 6.6 Summary Table of Variables Entered into the Discriminant Analysis

Step	Action		Wilks' lambda	Significance
	Enter	Remove		
1	GOAL7		.684	.0015
2	ORGAN4		.576	.0008
3	GOAL5		.528	.0010
4	ORGSTR2		.473	.0009
5	ORGSTR1		.409	.0006
6	ORGSTR3		.378	.0007
7	STRAT2		.350	.0010
8		ORGAN4	.362	.0005
9	STRAT3		.328	.0005
10	ORGAN3		.295	.0006
11	GOAL3		.244	.0003
12		ORGSTR1	.248	.0001
13		STRAT2	.256	.0000
14	GOAL8		.224	.0000
15	STRAT1		.205	.0001
16	GOAL1		.180	.0001
17	STRAT2		.170	.0001

This resulted in a total of eleven variables being identified as good discriminators between British and German companies. The statistics of the discriminant function in Table 6.7 shows that the function derived from these variables had a high Eigen value, a high canonical correlation and a low Wilks' lambda and was, therefore, highly significant.

Table 6.7 Statistics for the Discriminant Analysis of British and German Companies

Eigen Value	Canonical Correlation	Wilks' lambda	Chi-Square	Significance
4.886	.911	.170	38.109	.0001

In order to determine the predictive accuracy of the derived discriminant function the classification matrix was assessed (Table 6.8).

Table 6.8 Classification Matrix for British and German Companies

Actual Group	Prior Prob.	Predicted Group Membership				% cases correct class	% cases above C_{prop}
		UK	%	FRG	%		
UK	.55	16	100	0	0	96.55	46.05
FRG	.45	1	7.7	12	92.3		

As the size of the two groups differed the percentage of cases correctly classified was assessed using the proportional chance criteria discussed in Chapter Five. As can be seen from Table 6.8 the function proved to be an excellent discriminator between British and German companies. Given the significance of the derived function and its high predictive accuracy the requirements of an effective discriminant analysis were satisfied. As a result the function could then be used to classify the subsidiaries. A validation of the discriminant analysis is presented in Appendix K.

The results of the classification matrix (Table 6.9) unfortunately suggest that the hypothesis which intuitively combined the subsidiaries with their German parents should be rejected. On the contrary it suggests that the majority of subsidiaries resemble more closely the British sample. The rejection of this hypothesis raises the issue of the leverage of German machine tool manufacturers in overseas markets as the discriminant analysis suggests that the German subsidiaries are pursuing different goals and strategies to those of their parent companies. It suggests, therefore, that German manufacturers have only loose control over their overseas operation and in this instance questions their commitment to the British market.

Table 6.9 Classification Matrix for Subsidiaries

Predicted Group Membership			
UK		FRG	
Frequency	%	Frequency	%
8	72.7	3	27.3

The results of the discriminant analysis suggest that to adopt the intuitive approach of combining subsidiaries with their German parents would not be appropriate. Although over 70% of the subsidiaries appeared to be similar to their British competitors combining these two samples is unappealing. Given the findings of the discriminant analysis a three-way analysis is particularly interesting as it also raises issues about the relationships between German manufacturers and their British subsidiaries and as such adds an extra dimension to the analysis. For the purposes of

further analysis, therefore, the data has to be collapsed in another way. Many of the questions required a response on a five point scale so the results will be analysed by reducing the number of categories of response from five to three. Although this regrettably results in the loss of valuable data this trade-off seems necessary.

In analysing three samples there is the additional implication of small sample sizes and the representativeness of the results of this research. With sample sizes of 16 British, 11 subsidiaries and 13 German companies any findings emerging from this research must be treated with caution and cannot be seen to be representative of the machine tool industry as a whole in either of the two countries. The subsequent discussion of the findings of this research will, therefore, compare the marketing strategies of British manufacturers with those of the German manufacturers and their British subsidiaries.

6.4 Testing of the Propositions

Following a detailed review of the literature nine propositions were developed relating to the marketing strategies, organisational characteristics and level of marketing orientation of British and German companies (see Section 4.5). This analysis seeks to test these propositions by means of the chi-square test. The cut-off point for statistical significance in this test is largely arbitrary, but in social sciences the level is usually set at 5%.

However, Bryman and Cramer (1990) argue that "specifying the direction of the hypothesis means that we can adopt a slightly higher and more lenient level of significance" (p. 110). The hypotheses in this study are directional, therefore, a more lenient level of significance is acceptable and has been set at 10%. Results which do not meet this criterion are also presented as they are considered to be indicative of a difference between the samples being analyzed.

The marketing strategies of the three samples were largely measured directly. Respondents were asked to rate, on a five point scale, the importance of a series of statements to their companies, referring to the various aspects of marketing strategy. Various checks were included, in the form of differently worded questions, in order to test the validity of the responses. The use of a semi-structured questionnaire meant that responses could be double-checked in order to minimise the risk of misinterpretation. This format also allowed the researcher, time permitting, to expand on some issues to gain a deeper understanding of the participating companies and their marketing strategies.

The marketing strategies of the participating companies were also measured indirectly in that the researcher sought to concentrate on the activities associated with marketing strategies as outlined in Chapter Two rather than simply asking "What are your marketing strategies?".

The discussion of the results that follows draws both on the quantitative data collected in the course of the interviews and on the qualitative data obtained from many respondents. Not all respondents were forthcoming, however, the comments from many of the managers interviewed shed further light on these findings.

6.5 The Marketing Strategies of British and German Companies

This section presents the findings of the Anglo-German comparison and analyses the key differences and similarities between the three samples in their marketing strategies. The results are analysed according to the framework outlined in Chapter Two. Whilst this research does throw some light onto the differences between machine tool companies in Britain and Germany any findings should be treated with caution given the methodological weaknesses of the study.

6.5.1 Strategic Objectives

Managers were asked to rate the importance, to their company, of a series of eight goals. A number of significant differences were found to exist between the three samples. Most notable was the high level of importance, attached by British manufacturers and subsidiaries, to survival as a key company goal in the next five years. As Table 6.10 suggests 75% of British companies placed a strong emphasis on survival compared nearly 70% of Germans who saw this as particularly unimportant to them. It is interesting that the

subsidiaries did not have the same positive view of their future as their German parents which suggests that the German manufacturers interviewed are less committed to the British market than their domestic market.

Table 6.10 Company Goals

How important will the following company goals be in the next five years?

	unimportant 1	2	important 3
Survival			
British %	18.8	6.3	75.0
German %	69.2	7.7	23.1
Subsidiary %	18.2	18.2	63.6
Chi-square = 11.20; *df* = 4; Significance = .024			
Prevent decline of market share			
British %	18.8	12.5	68.8
German %	46.2	38.5	15.4
Subsidiary %	9.1	27.3	63.6
Chi-square = 10.31; *df* = 4; Significance = .036			
Short-term profit maximisation			
British %	25.0	18.8	56.3
German %	38.5	53.8	7.7
Subsidiary %	36.4	18.2	45.5
Chi-square = 8.89; *df* = 4; Significance = .064			
Increase market share			
British %	43.8	0	56.3
German %	30.8	15.4	53.8
Subsidiary %	0	9.1	90.9
Chi-square = 8.50; *df* = 4; Significance = .075			

Sample size: British = 16 German = 13 Subsidiary = 11

This defensive approach was further evident in the importance attached by British managers in both subsidiaries and manufacturing organisations to preventing a decline in

their market share (Table 6.10), although one British manager cynically observed "preventing decline of market share is not a key goal, as our market share is so low, we would go out of business if we lost any more". The fact that both these objectives are particularly important for British managers suggests a concentration by them on short-term issues rather than on the building of a long-term business. Further evidence of this short-term approach was seen in the emphasis placed on short-term profit maximisation as a key company goal. Over 55% of British manufacturers considered this to be very important compared with only 8% of German managers (Table 6.10).

With regard to short-term profitability the subsidiaries would again appear to resemble their British competitors more closely, confirming the results of the discriminant analysis. These findings would appear to confirm the view held by many observers that many British companies adopt a largely short-term defensive approach to business (eg. Doyle et al 1986, Budde et al 1982).

This approach of British manufacturers should, however, be viewed in the light of the rapid decline of the indigenous machine tool industry in Britain. Because so many companies went out of business, including the one-time leading manufacturer Alfred Herbert, it is not really surprising that the remaining companies should still feel vulnerable and be so concerned with survival. However, it is also interesting to note that, in spite of the publicity given,

in recent years, to the dangers of adopting a short-term approach it would appear that many British managers are still ignoring them. The analysis supports the widely held view that German managers are less oriented to the short-term goals of profitability (eg. Lawrence 1980, Reid and Schlegelmilch 1990, Turnbull and Cunningham 1981). However, they are not seen as being significantly different to their British counterparts in their pursuit of longer term goals of product and market expansion.

These findings bear out the results of the discriminant analysis with subsidiaries placing the same high emphasis as British manufacturers on survival, preventing decline of market share and short-term profitability. However, there is an interesting difference in the priority given to increasing market share as a company objective with nearly all subsidiaries seeing this as being important. This is likely to be because they are all sales and service operations rather than manufacturing companies and as such have different priorities. It could also be a reflection of a need by them to gain a good foothold in the British market.

The ways in which a company measures its own success also sheds light onto the kinds of objectives being pursued. As Table 6.11 shows there is a significant difference between the three samples in the measures used. Given the earlier emphasis on short-term profit maximisation by many British managers it is not surprising that significantly more

British manufacturers use profitability to measure their success. Of particular interest is the significantly larger proportion of German companies using market share and sales/turnover as a key measure of success demonstrating a higher level of market focus. The fact that so few German managers (7.7%) use profitability to measure their success would appear to confirm the notion expounded by Reid and Schlegelmilch (1990) that independent German companies are less likely to have any form of profit assessment. It is also interesting to consider the subsidiaries because, although they were actively pursuing short-term profit maximisation as a key company goal very few of them used profitability to measure their success, preferring to use market share and sales volume.

Table 6.11 Key Criteria used to Measure Success

Success Criteria	British %	German %	Subsidiary %
Profits	62.5	7.7	18.2
Market share	6.3	38.5	45.4
Other (incl. sales)	31.3	53.8	36.4

Chi-square = 13.04; *df* = 4; Significance = .011
Sample size: British = 16 German = 13 Subsidiary = 11

Many British managers stated quite clearly that market share was of little importance to them because as more than one Managing Director said "We can't currently define our market". This is in spite of statistical information made available by the trade association of which all participating companies were members. There was, however, no

significant difference between organisations in the two countries as regard the frequency with which market share information was updated with most respondents claiming to update information on an annual or bi-annual basis. There was also no significant difference between the number in each country that did not update market share information at all. In addition 22% of British respondents used other means of measuring success most notably the fact that "We have survived, therefore, we must be successful".

Companies were also specifically asked if they establish marketing objectives. Only 10 companies (25%) did so with the most common objectives being to increase market share, to expand overseas and to develop new products. The objectives, however, tended to be vague with little attempt to quantify them. Not one single subsidiary established specific marketing objectives.

6.5.2 Strategic Focus

As was hypothesized, the majority of German companies (92.3%) pursued strategies focussing on product quality and reliability. However, this was not unique to the Germans as 87.5% of British manufacturers and 81.8% of subsidiaries also claimed that their companies pursued similar strategies.

The focus by the Germans on product quality and reliability was backed up by the higher level of importance attached by

many companies to the development of new products and processes (61.5% compared with 43.8% for the British). What was interesting though was the 25% of British companies who said that they were not involved in developing new products and processes at all. This is again evidence of a short-term approach by some British manufacturers and starts to question how they can realistically pursue strategies based on product quality and reliability without the necessary product development support. This would appear to support the view put forward by Doyle et al (1986) that British companies are prepared to forego investment in new product development in order to achieve their profit objectives. The subsidiaries, because they are primarily sales and service organisations, were found to be less likely to develop new products and processes.

Table 6.12 Strategic Focus

How much do the following statements describe the strategy of your company?

	not important 1	2	very important 3
Concentrates on products not in direct competition			
British %	50.0	6.3	43.8
German %	76.9	23.1	0
Subsidiary %	63.6	0	36.4
Chi-square = 9.81; *df* = 4; Significance = .044			
Opens up new markets			
British %	31.3	25.0	43.8
German %	46.2	7.7	46.2
Subsidiary %	18.2	63.6	18.2
Chi-square = 9.41; *df* = 4; Significance = .052			

Sample size: British = 16 German = 13 Subsidiary = 11

Another contrast between the British and German sample companies was the significant number of British managers who said that they concentrated on products not in direct competition with others (Table 6.12). Is this because, as one British Managing Director put it "More British companies will move to supply niche markets because we are better at this than the Japanese" or because British manufacturers are no longer competitive in certain products/markets? Later analysis of the average of products sold throws some light on this finding. It is interesting that over 35% of the subsidiaries appeared to be pursuing a similar strategy to the British manufacturers. It might be that they are targeting different markets or that they are selling products not available from British manufacturers.

Table 6.13 Importance of a Good Current Profit Performance

How important to your company is it to achieve a good current profit performance?			
	not important 1	2	very important 3
British %	6.3	18.8	75.0
German %	38.5	30.8	30.8
Subsidiary %	18.2	18.2	63.6
Chi-square = 6.87; *df* = 4; Significance = .142			

Sample size: British = 16 German = 13 Subsidiary = 11

A further difference in strategic focus across the three samples was found in the importance attached to opening up new markets. The British and German samples attached equally high importance to this but the subsidiaries were less concerned with it. This is no doubt a reflection of the fact

that they only serve the British market and that opening up new markets is the role one would expect a parent company to play.

Further evidence of a focus by the British sample on short-term profitability was gained when respondents were asked how important it was for their company to achieve a good current profit performance. Whilst this was chiefly of average or little importance to most German managers 75% of British manufacturers saw it as being very important (Table 6.13), although there was no significant difference in the emphasis placed on low price as a contributory factor in performance. The importance of short-term profits to the subsidiaries again emerged in Table 6.13.

Table 6.14 Approach to Key Markets

How much do the following statements reflect your company's approach?

	not well 1	2	very well 3
Sales orientation*			
British %	0	12.5	87.5
German %	0	38.5	61.5
Subsidiary %	0	0	100.0
Chi-square = 6.57; *df* = 2; Significance = .038			
Financial orientation*			
British %	18.8	25.0	56.3
German %	53.8	23.1	23.1
Subsidiary %	27.3	54.5	18.2
Chi-square = 8.60; *df* = 4; Significance = .072			

Sample size: British = 16 German = 13 Subsidiary = 11

* for full details of statement see questionnaire in Appendix F1

Given that the key strategic focus of nearly all participating companies was on product quality and reliability it was not surprising to ascertain that the majority of companies considered themselves first and foremost to be product-oriented (Germans 92.3%; British 87.5%; Subsidiaries 81.8%). However, it is interesting to note that all subsidiaries also saw themselves as possessing a high level of sales orientation (Table 6.14) which reflects their role as a sales and service organisation. Meanwhile, significantly more of the British manufacturers considered themselves to also display a high degree of financial orientation, thus confirming their preoccupation with short-term financial gain (Table 6.14). This emphasis on a financial orientation was also observed, in British companies, by Doyle (1987).

6.5.3 Customer Targets

All respondents were able, with no prompting, to identify the main groups of customers in the machine tool industry. There was a particularly heavy emphasis on the automotive sector, the traditional machine tool market, by British companies, but as one Managing Director said "British manufacturers need to reduce their dependency on this sector". Although many German manufacturers and their subsidiaries also served the automotive industry there was a higher incidence of identifying and targeting alternative segments. However, although the managers were able to identify key customer groups, it was important to establish

whether or not they actually did practice target marketing. This was conducted in two different ways. Firstly respondents were asked what bases they used to segment their markets. 30% said that they did not segment their market at all and of the 28 companies that did, Table 6.15 shows that more British and subsidiary companies segmented by industry whereas more German companies segmented on a geographic basis. One reason for this difference in approach to segmentation is that the German manufacturers interviewed were more internationalised than their British rivals and were, therefore, more likely to target overseas markets. Subsidiaries tended to segment on an industry basis because in many instances they were set up to serve a specific sector eg. automotive.

Table 6.15 Basis for Segmenting the Market

Segmentation Base	British %	German %	Subsidiary %
Industry	80.0	44.4	77.8
Geographic	20.0	55.6	22.2

Chi-square = 3.34; *df* = 2; Significance = .188
Sample size: British = 10 German = 9 Subsidiary = 9

Secondly, and in order to verify the extent to which the companies identified and targeted markets, managers were questioned about their approach to customers in their key markets. The most notable difference between the three samples was that more German and subsidiary companies said that they had clearly defined target markets (Table 6.16). This is an indication that many of the British companies interviewed either do not understand the importance of

segmenting their markets or simply cannot be bothered to do so. However, seen in the light of an earlier finding in which many companies said they were unable to define their market in order to measure their market share it is really not surprising that they are unable to segment effectively because they do not have sufficient information on the market in the first place. This poor ability to define and segment the market does not, however, appear to be unique to machine tool companies (see Doyle et al 1986). However, there was a worrying air of complacency in one major British manufacturer as the Managing Director admitted "We don't see a need to segment the market".

Table 6.16 Approach to Market Segmentation

How much do the following statements describe your approach to customers in your major markets?

	not well 1	2	very well 3
We have clearly defined target segments			
British %	25.0	37.5	37.5
German %	23.1	15.4	61.5
Subsidiary %	18.2	0	81.8
Chi-square = 7.21; *df* = 4; Significance = .125			
We tailor our products to meet customer needs			
British %	18.8	12.5	68.8
German %	7.7	15.4	76.9
Subsidiary %	27.3	45.5	27.3
Chi-square = 7.70; *df* = 4; Significance = .103			

Sample size: British = 16 German = 13 Subsidiary = 11

British manufacturers would, therefore, appear to be less market-focussed than German or subsidiary companies. Table 6.16 also shows that the majority of British and German

manufacturers interviewed claimed to tailor their products to meet customer requirements. However, less than 30% of the subsidiaries seemed to think that they were selling products tailored to meet customer needs. This is possibly because they are not involved in the design and manufacture of the products. Alternatively it could be that the German manufacturers cater principally for their German customers and do not specifically consider British customers when designing their products. If the latter is the case then again the commitment of the Germans to the British market has to be questioned.

6.5.4 Competitor Targets

All respondents were agreed that the market for machine tools is highly competitive. There were, however, significant differences between the three samples as regards their major competitors in the European market. It was quite alarming was that not one single German manager saw a British manufacturer as their major rival (Table 6.17). This compared with over 30% of British managers who considered German companies to be their key competitors. One German respondent actually observed "The British do not represent serious competition".

More subsidiaries saw British manufacturers as major competitors, although this is largely because they are operating solely in the British market. It is interesting that 85% of the German respondents saw their fellow

countrymen as major rivals with even the Japanese seemingly being given only small consideration. This confirms the findings of Simon (1990) who observed that many successful German companies saw other Germans as their strongest competitors. This result, therefore, starts to question the competitiveness of the British machine tool industry in the European arena.

Table 6.17 Nationality of Major Competitor

Nationality	British %	German %	Subsidiary %
British	43.8	0	36.4
German	31.3	84.6	27.3
American	0	0	27.3
Japanese	25.0	15.4	9.1

Chi-square = 19.93; *df* = 6; Significance = .003
Sample size: British = 16 German = 13 *Subsidiary = 11*

In addition to indicating the nationality of their major rivals respondents were asked to actually name their top five competitors. Whilst nearly all managers were able to do this it is important to note that two British managers were unwilling or unable to perform this relatively simple task. In the case of these two companies it was embarrassingly clear that their knowledge and understanding of the marketplace was poor.

Respondents were also questioned about the strategies pursued by their competitors. As Table 6.18 shows, nearly 70% of German managers thought that their rivals were following strategies based on low price. Many subsidiaries,

like their German parents were also concerned that their competitors were pursuing strategies based on low price. This concern for competitor pricing strategies could stem from the observation that the majority of German manufacturers and subsidiaries interviewed were commanding premium prices for their products (Table 6.19).

Table 6.18 Strategy of Key Competitor

Strategy	British %	German %	Subsidiary %
Low price	25.0	69.2	50.0
Product quality and innovation	56.3	23.1	30.0
Long-term market domination	18.8	7.7	20.0

Chi-square = 6.14; *df* = 4; Significance = .189
Sample size: British = 16 German = 13 Subsidiary = 10

It is interesting to note, however, that even though many of the participating organisations were cited as competitors by other respondents *not one of them* admitted to charging prices below those of their rivals. It is interesting too that more British respondents thought that their competitors were pursuing strategies based on product quality or product innovation. This is probably because the German managers already assume that their fellow German competitors pursue product-related strategies and that, with all products being similar in terms of design, performance and quality it is necessary to compete in other areas. This could also explain why so many German respondents were worried about price as a major competitive threat. It is also an indication that British managers are worried about quality and innovation,

possibly because they know that these are their distinct weaknesses. It could also be that the British companies are already competing on price as fewer British companies said that they commanded higher prices for their products. In addition, it is likely to be a reflection of the poorer product quality and reliability of British products which would not allow for a premium pricing policy. Subsidiaries, however, by selling the quality products manufactured by their German parents were better placed to command higher prices.

Table 6.19 Competitor Price Comparison

How do your prices compare with the competition			
	lower 1	2	higher 3
British %	25.0	56.3	18.8
German %	0	30.8	69.2
Subsidiary %	0	9.1	90.9
Chi-square = 17.12; *df* = 4; Significance = .002			

Sample size: British = 16 German = 13 Subsidiary = 11

Very few companies saw themselves as being significantly better than their competitors in terms of product design and performance. This is a reflection of the convergence of product features and the general importance of such factors in the machine tool market. It is also a reflection of the mature nature of the market in which product differentiation becomes even more difficult to sustain.

6.5.5 Differential Advantage

Success in marketing depends upon the ability of a company to meet the needs of the customers better than, or at least as effectively as, the competition. In listing their most important strengths relative to the competition the highest proportion of British managers cited product factors, such as product performance and quality, as differentiating them from their rivals (Table 6.20). This finding is a little surprising given that only half of the British respondents considered their product performance and quality to be better than their competitors.

British manufacturers do seem to believe that product quality and reliability are key factors for the 1990's and as such are placing priority on them. This may well be because these issues have been neglected in the past and there is the realisation that survival is highly dependent on producing the kind of quality products manufactured by Germany and Japan, the industry leaders, for decades.

Table 6.20 Key Strengths Relative to the Competition

Strengths	British %	German %	Subsidiary %
Product-based	68.8	33.3	45.5
Engineering skills	12.5	8.3	27.3
Customer-based	18.8	58.3	27.3

Chi-square = 6.66; *df* = 4; Significance = .155
Sample size: British = 16 German = 12 Subsidiary = 11

Nearly half of the subsidiaries saw their strengths in product-related attributes, mainly product quality which

would seem to link in with their pricing strategy. Even though they are sales and service operations it is interesting that so few subsidiaries considered themselves to have customer-based strengths. It is widely accepted that German companies manufacture quality, reliable products (eg. Limprecht and Hayes 1982, Lawrence 1980), but this research suggests that German machine tool manufacturers are turning their attention increasingly towards the important customer-based factors such as customer service and problem solving capabilities as a means of creating advantage. This supports the view held by Meissner (1986) that the Germans understand that in order to create a sustainable advantage they need, in addition to offering quality products, to offer a complete package backed-up by a first rate after-sales service.

Table 6.21 Research and Development Capabilities

How much does the following statement describe your company's approach to R & D?			
	not well 1	2	very well 3
Strong advanced research capability			
British %	56.3	12.5	31.3
German %	25.0	8.3	66.7
Chi-square = 3.53; *df* = 2; Significance = .171			
Flexible and responsive R & D capability			
British %	25.0	18.8	56.3
German %	8.3	0	91.7
Chi-square = 4.52; *df* = 2; Significance = .104			

Sample size: British = 16 German = 12

Another important factor related to future competitive advantage is the emphasis placed on new product development. Table 6.21 shows that, although quite a high proportion of British companies interviewed claimed to possess a flexible and responsive R & D capability, nearly all of the German participants were more active in this area. This shows a commitment, on the part of the Germans, to the development of a long-term business based on responding to customer needs and further highlights a British weakness in product development identified by Doyle et al (1986).

6.5.6 Marketing Mix

Product

Products from right across the broad range of machine tools were represented in the sample companies from CNC lathes to drilling machines; grinders to boring machines. Companies in all three samples claimed that they pursued strategies based on product differentiation (Germans 100%; British 93.8%; Subsidiaries 100%). Viewed in the light of the average age of products currently in the sample companies' portfolios there is some doubt as to the success of the British manufacturers and subsidiaries in their chosen strategic focus. As Table 6.22 shows more than half of the British companies interviewed were selling products which were over 20 years old. This compared with nearly three-quarters of German participants who were marketing products developed in the last ten years. It is particularly interesting, however,

that half of the subsidiaries said that they too were selling products developed over twenty years ago.

Table 6.22 Average Age of Products Sold

Product age	British %	German %	Subsidiary %
less than 10 years	35.7	71.4	16.7
11 to 20 years	7.1	14.3	33.3
over 20 years	57.1	14.3	50.0

Chi-square = 6.49; *df* = 4; Significance = .166
Sample size: British = 14 German = 7 Subsidiary = 6

The implication here is that German manufacturers are not selling their latest products into the British market. Perhaps the British market is seen to be less sophisticated, alternatively there might be greater demand for conventional machine tools rather than CNC technology. Table 6.22 suggests that British manufacturers are poor at developing and introducing new products such that a further decline in the indigenous British machine tool industry seems inevitable.

When viewed in parallel with the earlier finding that a significant number of British companies claimed to produce products not in direct competition it could be suggested that the latter is true, not because these companies are practicing niche marketing, but because their technology is outdated such that it is no longer competitive. Further support for this view was provided by the Managing Director who openly admitted that "Our products are technically obsolete". In spite of this observation that British

managers were trying to sell old technology 56.3% of them said that they were satisfying the need for superior products.

In terms of research and development more German manufacturers said that their companies possessed a flexible and responsive R & D capability (Table 6.21). The German claim would appear to be substantiated when the average age of product sold is taken into account. The British manufacturers who claimed to have a flexible and responsive R & D capability could be the result either of a desire to possess such a capability or a realisation that to stay in business they need to develop strengths in R & D. In addition to this facility twice as many of the German companies interviewed said that they possessed a strong advanced research capability. Meanwhile less than a third of British companies had such a facility suggesting a lower level of commitment to R & D a characteristic observed by other researchers (eg. Doyle et al 1986).

A further indication of a company's new product development activity is the level of investment in R & D. Only half of the British sample gave this information with the other half not divulging such data possibly because they did not invest at all in R & D. However, of those that did respond, the average investment in R & D was 5.75% of turnover. This compared with an average for the 11 German respondents of 5.4% of turnover. This result is encouraging for the British machine tool industry and would seem to indicate that some

manufacturers are taking new product development seriously. It could, however, be the case as Rommel (1991) suggests that, although spending less as a percentage of turnover the German companies are concentrating their investment better than their British counterparts.

An analysis of the breadth of product range (Table 6.23) shows that half of the British manufacturers considered that they had a narrower range than their competitors. More interesting, however, is the 72.7% of subsidiaries that had a broader product offering suggesting that German machine tool manufacturers have broader product ranges than their British counterparts. This might go some way towards explaining the poor competitiveness of the British machine tool industry.

Table 6.23 Comparison of Product Range with Competitors

How does your product range compare with that of your competitors?			
	narrower 1	2	broader 3
British %	50.0	18.8	31.3
German %	23.1	38.5	38.5
Subsidiary %	0	27.3	72.7

Chi-square = 9.75; *df* = 4; Significance = .045
Sample size: British = 16 German = 13 Subsidiary = 11

Price

The literature suggests that German companies adopt a premium pricing policy (eg. Parkinson 1984, Lawrence 1980). This research found that the majority of German machine tool manufacturers interviewed also priced their products higher

than their competitors (Table 6.19) reflecting their higher product quality. This would appear to be supported by the finding that nearly all the subsidiaries are commanding premium prices in the British market. Most British companies, meanwhile, claimed to match their competitors on price and only 25% admitted to charging prices below those of their competitors. However, given that less than 20% said that their prices were higher than their rivals it would appear that British manufacturers use price more than the Germans as a key element of the marketing mix.

Distribution

Table 6.24 Mode of Operation in European Markets

Mode of Operation	Britain %	Germany %
direct export	31.3	23.1
agents	68.8	38.5
subsidiaries	0	38.5

Chi-square = 7.52; *df* = 2; Significance = .023
Sample size: British = 16 German = 13

On a world-wide basis no significant difference was found in the distribution strategies of British and German manufacturers. Within the European market, however, there was a difference in the ways in which the companies operated. As Table 6.24 demonstrates significantly more German manufacturers operated through subsidiaries in European markets. This could of course simply be the result of the bias in the sample towards larger German organisations and the method used to gain interviews with

German manufacturers. In this particular sample the British companies relied more heavily on agents and direct export as their main mode of operation in European markets.

Promotion

Companies were initially asked whether or not they had a marketing department. As Table 6.25 shows over half of the German companies interviewed did have a separate marketing function compared with nearly 45% of their British counterparts. Meanwhile less than 10% of the subsidiaries had a marketing department. This is principally due to their small size and also the availability of promotional material from their German parents. This also probably explains why they have a relatively low expenditure on promotional activities (on average 1.8% of turnover). By comparison their parent companies were spending an average of 2.4% of turnover which when considering the British companies is also relatively low as British managers claimed that they were spending on average 4.6% of their turnover on advertising and promotion. However, it is important to consider the actual amount spent and again, given their higher average turnovers, in real terms the Germans are spending more on promotional activities. This finding also suggests that machine tool manufacturers place greater emphasis on research and development than on marketing with R & D expenditure on average double that of the marketing budget. But this is probably a reflection of the nature of this industry in which product considerations are paramount.

Table 6.25 Existence of Marketing Department

Does your company have a separate marketing department?			
YES	British 43.8%	German 53.8%	Subsidiary 9.1%

Chi-square = 5.54; *df* = 2; Significance = .063
Sample size: British = 16 German = 13 Subsidiary = 11

Those organisations which had a marketing function, as would be expected, gave responsibility for marketing services such as advertising and promotion to that department. Of the remaining 25 companies that did not have a marketing department responsibility for advertising and promotion rested primarily with the Managing Director.

6.6 Examination of the Propositions Relating to Marketing Strategy

In examining the propositions developed in Chapter Four only the British and German manufacturers have been considered as the implications of the German parent - subsidiary relationship will be explored in more detail in Chapter Eight. The methodological weaknesses of the study should also be borne in mind such that any conclusions drawn cannot be seen to be representative of the industry as a whole.

HS1 The analysis supports the view that German manufacturers place greater emphasis on longer term strategies (Limprecht and Hayes 1982, Turnbull and Cunningham 1981, Simon 1990), although they were no more likely to pursue the goals of market and product expansion than their British

counterparts. Significantly more German managers said that their companies had 'increasing market share' as a key company goal which indicates a greater market focus. They were more active in target marketing than their British counterparts with the result that their strategies had a greater customer focus.

British companies, meanwhile, were more internally focussed attaching more importance to the short-term, defensive strategies of profit maximisation, survival and preventing decline of market share. In addition, they appeared to have a poorer understanding of the market and how to define it accurately such that many of them were simply trying to sell what they manufactured rather than assessing and meeting customer needs. This proposition is, therefore, fully supported.

HS2 This research supports the hypothesis that German companies are pursuing strategies based on product quality and reliability (Parkinson 1984, Lawrence 1980). Closer analysis, however, reveals that, although no significant difference existed between the two sets of companies in this respect, the German manufacturers were more successful in their pursuit of these strategies. This becomes apparent when the average product age and the commitment to new product development are considered. The proposition, however, is not fully supported with regard to the development of a competitive advantage, by the Germans, based on product quality and reliability. When questioned

about their differential advantage, half of the German respondents said that their strengths lay in customer-based attributes such as service and problem solving skills. It was the British companies which that were claiming to possess a competitive advantage in product terms although, the reality of this is in doubt.

HS3 This proposition contends that German manufacturers place a higher priority on the product element of the marketing mix, whilst British companies emphasise price (Parkinson 1984). The German manufacturers interviewed did appear to emphasise product issues which is reflected in their predominantly product orientation. However, the British respondents were also largely product-led, although many of them also displayed high degrees of sales and financial orientation. British companies did not appear to be able to command the same level of premium pricing for their products as their German rivals which suggests that they probably do use price more as a means of gaining business. This proposition is, therefore, supported.

6.7 Organisational Characteristics of British and German Companies

The preceding sections suggest that there are a number of distinct differences between British and German machine tool companies in terms of their marketing strategy. A number of interesting differences between German manufacturers and their subsidiaries also emerged. This section now

concentrates on the differences and similarities between the three samples in their organisations and thus their ability to implement their chosen strategies. As with the earlier findings these results are subject to the same methodological weaknesses and as such should be treated with caution.

6.7.1 Structure

The structures of companies in the two countries were largely organised along traditional functional lines (British 100%; German 76.9%; Subsidiary 77.8%). Although not significant, it is interesting that 23.1% of the German companies adopted a matrix structure which followed through into their subsidiaries (22.2%). In keeping with the functional structures comparable numbers of British and German manufacturers had a marketing department, although significantly less subsidiaries did because of their smaller size. Although British manufacturers and subsidiaries were found to operate more informal organisations there was no significant difference between the three samples in their organisational characteristics.

6.7.2 Systems

Managers were asked to rate a series of statements relating to planning and control procedures in their organisations. The empirical literature reviewed in Chapter Four presented a set of conflicting views on the nature of planning and

control in Britain and Germany and the findings of this research throw some doubt on the proposition that British companies are more formalised with a greater emphasis on long-term planning. Table 6.26 shows that three times as many of the German manufacturers interviewed were engaged in long-term planning than their British counterparts. Twice as many subsidiaries were also more long-term planning oriented than the British manufacturers. In addition both the German organisations and their subsidiaries were more active in formal medium to short-term planning than their British counterparts (Table 6.26).

Table 6.26 Planning Systems

How much do the following describe the approach of your company to planning?		
	not well 1	very well 2
Formal long range plans		
British %	75.0	25.0
German %	25.0	75.0
Subsidiary %	45.5	54.5
Chi-square = 7.07; *df* = 2; Significance = .029		
Formal medium to short-term plans		
British %	43.8	56.3
German %	8.3	91.7
Subsidiary %	36.4	63.6
Chi-square = 4.26; *df* = 2; Significance = .119		

Sample size: British = 16 German = 12 Subsidiary = 11

These findings would appear to go against the observations made by Horowitz (1980) and Reid and Schlegelmilch (1990) and support those made by Freeman (1979). It was noted earlier that many British manufacturers seemed to be less

clear about their target markets which could go some way towards explaining their lack of planning. Furthermore, this lack of planning on the part of the British manufacturers would appear to confirm the emerging trend, in the findings, towards higher levels of informality in British companies. In addition their emphasis on short-term company objectives is likely to hinder any long-term planning processes.

Managers were also asked to rate their companies in terms of a bias towards action or towards planning. As might be expected from the above findings the majority of British managers (75%) described themselves as being more action-oriented. The German and subsidiary managers, however, appeared to be more concerned with finding the right balance between planning and the need for action. The declining nature of the British machine tool industry may add to the reluctance by British manufacturers to plan any more than one year in advance. One Managing Director did observe "In terms of planning five years is too long. Even one year is a long time for us".

The literature suggests that control procedures in German companies are stringent and directed towards corrective action (eg. Trevor et al 1986, Horowitz 1980). This study supports these observations as more German organisations appeared to implement formal control mechanisms and more importantly implemented control procedures aimed towards corrective action (Table 6.27). Particularly interesting was the high proportion of British manufacturers that did not adopt formal control mechanisms at all agin backing up

findings by Horowitz (1980). Although viewed in the light of the findings on planning, it might be expected that many British companies should have no formal control systems. The emphasis by the Germans on control aimed towards corrective action suggests that they are not controlling their plans just for control's sake, but in order to make any necessary changes to their plans. Subsidiaries did not appear to be as rigourous in their control procedures as their German parents, but size might play a role here as control procedures do not necessarily need to be so tight in smaller companies.

Table 6.27 Control Procedures

How important are the following control procedures to your company

	not important 1	2	very important 3
Formal assessment of goals and objectives			
British %	56.3	12.5	31.3
German %	8.3	33.3	58.3
Subsidiary %	45.5	9.1	45.5
Chi-square = 7.78; *df* = 4; Significance = .099			
Formal control aimed towards corrective action			
British %	37.5	6.3	56.3
German %	8.3	8.3	83.3
Subsidiary %	27.3	36.4	36.4
Chi-square = 8.87; *df* = 4; Significance = .064			

Sample size: British = 16 German = 12 Subsidiary = 11

Participants were also required to describe the degree of control and supervision in their organisations. As Table 6.28 suggests there was a tendency in all three samples

towards a loose system, although British manufacturers and subsidiaries seemed to place a higher emphasis on informal loose supervision possibly related again to size.

These findings on planning and control systems would seem to indicate that German manufacturers have a better understanding of their markets and opportunities and are thus actively planning to achieve their objectives of producing quality, reliable products. They would also suggest that survival as the key objective of many British companies is not really planned, but simply happens more by luck than judgement.

Table 6.28 Degree of Control and Supervision

How would you describe the degree of supervision and control within your organisation?		
	loose 1	tight 3
British %	75.0	25.0
German %	58.3	41.7
Subsidiary %	100.0	0

Chi-square = 5.26; *df* = 2; Significance = .072
Sample size: British = 16 German = 12 Subsidiary = 10

6.7.3 Staff and Skills

Managers were asked a series of questions relating to the management teams in their companies. No significant difference was found between Britain and Germany with regard to internal promotion with companies in all three samples promoting managers mostly from within (Britain 68.8%; Germany 53.9%; Subsidiaries 80%).

In terms of background the majority of respondents came from an engineering background but significant differences were found in the qualifications of the respondents (Table 6.29). Research suggests that German managers are better educated than their British counterparts (eg. Handy 1987). Although the sample sizes are small all of the German respondents were educated to degree level. It is interesting, however, that so many of the British respondents were also educated to degree level, although a significant number still progressed through the apprenticeship route and nearly 15% of those interviewed possessed no formal qualifications at all. But more interesting is the observation that fewer subsidiary managers were educated to degree level. Given the higher qualifications of the German respondents one might expect them to employ better educated individuals in their subsidiaries. With 40% of respondents in subsidiaries having no qualifications they would appear to be less well educated than British manufacturers. This is particularly interesting as 70% of those interviewed in the subsidiaries were Managing Directors.

Table 6.29 Qualifications of Respondents

Qualifications	British %	German %	Subsidiary %
Degree level	64.3	100.0	20.0
Apprenticeship	21.4	0	40.0
No qualifications	14.3	0	40.0

Chi-square = 10.54; *df* = 4; Significance = .032
Sample size: British = 14 German = 6 Subsidiary = 10

More German managers (38.5%) had worked in other European countries than British (16.7%) or subsidiary (18.2%) managers but this result was not found to be significant. It is also interesting to consider the importance attached by the three samples to a knowledge of foreign languages. Typically British people are considered to be weak in this area and this sample would appear to be no exception. As Table 6.30 shows significantly more German respondents viewed a knowledge of foreign languages as being important to their performance.

Table 6.30 Importance of Foreign Languages to Company Performance

How important is a knowledge of foreign languages to your performance?			
	not important 1	2	very important 3
British %	50.0	20.0	30.0
German %	0	16.7	83.3
Subsidiary %	50.0	10.0	40.0
Chi-square = 9.72; *df* = 4; Significance = .045			

Sample size: British = 10 German = 12 Subsidiary = 10

Only 30% of British and 40% of subsidiary managers thought that languages were important to their performance. More subsidiaries had a knowledge of languages largely as a result of their dealings with their German parents, as all respondents in subsidiaries either spoke or were learning German. Meanwhile, the most common language spoken by British managers was French and the German manager English reflecting the importance of English as a common business language. This could be a reflection of the education

systems and attitudes within the two countries, but the lower level of importance attached to foreign languages by British manufacturers might demonstrate a lower level of commitment to European markets. This probably goes some way towards explaining the priority given, by many British companies, to other English speaking markets such as the United States, New Zealand and Australia. In order to be a serious contender in European markets British companies need to address the issue of language ability in order to compete more effectively with their German rivals who already have a head start.

Respondents were also questioned about the level and type of management training available within their companies. The literature suggests that managers in neither country take management training seriously (eg. Lawrence 1980, Parkinson 1984, Handy 1987). However, Table 6.31 shows that significantly more German companies were involved in management training than their British counterparts. In spite of this no significant differences were found between the three samples in their approach to management training.

Table 6.31 Management Training

Is your company active in management training?			
YES	British 56.3%	German 84.6%	Subsidiary 40.0%

Chi-square = 5.07; *df* = 2; Significance = .079
Sample size: British = 16 German = 13 Subsidiary = 10

Whilst Table 6.31 suggests that German machine tool manufacturers are more involved in management training a

better indicator of a company's commitment to training and the improvement of the skills of their management team is the average number of days spent on training courses in a year. Table 6.32 would seem to support the earlier observation as nearly half of the German companies interviewed provided managers with in excess of ten days training a year. In fact an average of 17 days per annum was spent, on training courses, by German managers compared with only five days a year in British companies and two days a year in subsidiaries. Although less time appears to be spent by managers in British machine tool companies on management training it is encouraging that the result is better than the estimate by Constable and McCormick (1987) of one day a year.

Table 6.32 Days spent by Senior Managers on Training Courses

Days training	British %	German %	Subsidiary %
0	50.0	15.4	66.7
1 - 5	14.3	15.4	22.2
6 - 10	35.7	23.1	11.1
over 10	0	46.2	0

Chi-square = 15.94; *df* = 6; Significance = .014
Sample size: British = 14 German = 13 Subsidiary = 9

It is interesting that whilst German companies appear to be committed to management training in Germany, they do not appear to show the same commitment to their subsidiaries. This too has implications for the way in which German manufacturers handle their overseas subsidiaries and also

their commitment to the British market. Perhaps it is a case of being seen to be in the market using their own name but with the minimum investment. However, it should be pointed out that several German respondents clarified that the days spent training also included time spent on technical training and product familiarisation, as was the case in Handy's (1987) research. Therefore, no true figure is available for the amount of time spent, by German managers, on management training courses. The lack of management training in British companies could again be influenced by the decline in the indigenous British machine tool industry as well as by the short-term approach adopted by many of its companies.

Table 6.33 Distinctive Skills and Abilities of Management

Skill	Britain %	Germany %	Subsidiary %	Sig.
Technical	56.3	23.1	27.3	.132
Flexibility	6.3	53.8	9.1	.004
Experience of the industry	25.0	0	9.1	.119

Sample size: British = 16 German = 13 Subsidiary = 11

In addition to the information on management training, respondents were asked to list the distinctive skills and abilities of management within their companies. Eight key skill areas were identified and differences between the three samples were found on three of these (Table 6.33). It is notable that a high proportion of British companies consider themselves to have a high level of technical

skills. The findings presented earlier with regard to R & D and product age beg the question as to whether British manufacturers fully understand their position in the marketplace. It is also interesting that over half of the German managers interviewed believed that their distinctive management skill was in being flexible in adapting to changes in the marketplace. The subsidiaries said that their main ability was in responding to customer demands but they did not differ significantly from the other two samples in this respect. Respondents were also asked to rate their skills and abilities with those of their competitors. As Table 6.34 shows that more British manufacturers thought that their distinctive management skills were better than those of their competitors. This finding is worrying as other results of this research suggest that, in the areas where British managers see themselves as having distinctive skills, they appear to be weak when compared with their German competitors.

Table 6.34 Comparison of Skills with the Competition

How do your management skills and abilities compare with those of your competitors?			
	worse 1	2	better 3
British %	21.4	42.9	35.7
German %	36.4	63.6	0
Subsidiary %	18.2	72.7	9.1

Chi-square = 7.12; *df* = 4; Significance = .129
Sample size: British = 14 German = 11 Subsidiary = 11

6.7.4 Style and Shared Values

The style adopted by management in the three samples in their communications channels was found to differ. The predominant communications style emerging from the British manufacturers and subsidiaries was one aimed towards informality (Table 6.35). Size could, however, be a determining factor. Meetings between senior managers were found to be regular in all three samples (British 62.5%; German 76.9%; Subsidiaries 54.5%) as were communications between management and employees (British 81.3%; German 53.8%; Subsidiaries 90.9%).

Table 6.35 Style of Senior Managers

How much do the following statements describe your company's communications channels?			
	formal 1	2	informal 3
British %	18.8	6.3	75.0
German %	30.8	38.5	30.8
Subsidiary %	18.2	9.1	72.7

Chi-square = 9.81; *df* = 4; Significance = .044
Sample size: British = 16 German = 13 Subsidiary = 11

The majority of all respondents claimed to emphasise flexibility as well as efficiency and control. However, more German respondents appeared to encourage risk-taking than their subsidiaries or British counterparts (Table 6.36). This could be a reflection of the stronger position of most of the German companies in the market and also the relationship that they have with their banks such that taking risks is less likely to result in financial

difficulties than in some British companies. It is interesting that the subsidiaries were found to be more risk averse, although this is probably because their parent organisations take all the risks. It might, however, indicate that the German machine tool manufacturers interviewed were more prepared to take risks in their domestic market whilst minimising risk overseas.

Another difference observed in terms of style was in the extent to which departments within the organisations cooperated effectively to ensure the success of the company. Many academics have highlighted a higher incidence of team-work and inter-departmental cooperation in German companies (eg. Locke 1989, Parkinson 1984, Limprecht and Hayes 1982). In this study all three samples claimed that team-work was common, however, from Table 6.36, it would appear that the German manufacturers are indeed better at integrating the functions within their organisations than the subsidiary and British companies.

In order to ascertain whether any sense of shared values existed within the sample companies, respondents were asked whether their organisations had objectives, other than goals such as market share, profitability and growth, which were important to their companies. Eleven key factors were mentioned ranging from providing job satisfaction (British 31.3%; German 46.2%; subsidiaries 54.4%) to creating a good working environment (British 37.5%; German 46.2%; Subsidiaries 63.6%). Those which highlighted a difference

between the two sets of companies are presented in Table 6.37. Although the percentages are small it is interesting that so many of the German respondents interviewed wanted to improve the image of their companies. Two companies had the specific objective of wanting its name to become synonymous with the type of product it manufactured. It was, however, not entirely clear whether these objectives were intended just for the German market or for Europe as a whole.

Table 6.36 Description of Organisational Style

How much do the following statements describe your company's organisation?			
	not well 1	2	very well 3
Encourages risk-taking			
British %	25.0	43.8	31.3
German %	23.1	15.4	61.5
Subsidiary %	40.0	50.0	10.0
Chi-square = 7.37; df = 4; Significance = .117			
Departments cooperate for the company's success			
British %	12.5	31.3	56.3
German %	0	0	100.0
Subsidiary %	18.2	18.2	63.6
Chi-square = 8.20; *df* = 4; Significance = .084			

Sample size: British = 16 German = 13 Subsidiary = 11

The desire to produce the best products as an organisational shared value observed by Locke (1989), did not emerge as a distinguishing feature of the German machine tool manufacturers interviewed. Such a desire could, however, be implicit in the company's goals such that it is unnecessary to state it separately.

Table 6.37 Organisational Shared Values

Value	Britain %	Germany %	Subsidiary %	Sig.
Customer relations	0	23.1	18.2	.139
Total quality	0	15.4	0	.112
Improve image	6.3	30.8	9.1	.149

Sample size: British = 16 German = 13 Subsidiary = 11

Finally managers were asked to assess the level of commitment by their employees to the company's objectives, strategies and values. On the whole the respondents in the three samples felt that the level of commitment was high (British 68.8%; German 69.2%; Subsidiaries 63.6%). This is encouraging for companies in both countries, particularly in Britain where the industry has suffered in recent years and many jobs have been lost. However, it should be noted that the view on the level of commitment to the organisations is that of the senior managers and not the employees and it could be that the managers are simply hoping that their employees' commitment is high.

6.8 Examination of the Propositions Relating to Organisational Characteristics

The propositions relating to the organisational characteristics of British and German companies are considered, although the small sample sizes mean that any findings are not generalisable to the British and German machine tool industries as a whole.

HO1 This proposition contends that German organisation structures are more informal with a focus on serving the customer (Parkinson 1984). The results from this research suggest that British and German machine tool manufacturers are organised largely along similar lines. Although many British companies appeared to operate on a more informal basis than their German competitors no significant differences were found. It is not clear whether German organisation structures are specifically designed to focus on the customer, although other findings suggest that the German companies appear to be more customer-oriented than their British counterparts. This proposition is, therefore, rejected.

HO2 This proposition states that planning and control systems in British companies are formal with greater emphasis on long-term planning (Horowitz 1980, Reid and Schlegelmilch 1990). The analysis, however, suggests that German machine tool manufacturers have a greater commitment to formalised planning and control procedures both in the long-, medium- and short-term. By contrast the level of planning and control activity in British companies, particularly with regard to formal long-term planning, appeared to be significantly lower. This proposition is, therefore, rejected.

HO3 Proposition HO3 takes the view that German managers adopt a more informal approach to communications with a

greater emphasis on team-work (Locke 1989, Meissner 1986). This analysis suggests that, within the German sample, there was an even split with approximately one third operating formal communications channels, a third adopting a more formal approach and one third finding the right balance between the two. Team-work was found to be common, although no significant difference between the British and German samples was found. However, there was evidence to suggest that inter-departmental cooperation is more effective in German machine tool organisations than in the British companies. This proposition is, therefore, only partially supported.

HO4 This proposition contends that German managers are better educated, although there is no difference in the level of management training received in the two countries (Handy 1987, Lawrence 1980, Trevor et al 1986). The results of this research suggest, however, that more German managers in the machine tool industry are educated to degree level than their British counterparts, but the sample size for the Germans is so small that this finding should be treated with caution. However, an examination of the level of management training received showed a significant difference between British and German manufacturers. It would appear that more German companies are providing management training, particularly when the average number of days spent on training courses per year is considered. However, it should be borne in mind that this figure also included time spent on technical training. No significant differences were found

between companies in the two countries in the type of training received by managers. Whilst the first part of this proposition can be tentatively supported the second part is rejected.

HO5 Proposition HO5 states that there is a greater flow of information in German organisations such that motivation is high instilling a shared belief in the company and its objectives (NEDO 1981). The flow of information in the German companies interviewed was not found to differ significantly to that in the British companies and the level of commitment of employees to their companies was found to be equally high in both countries such that this proposition is also rejected.

6.9 Marketing Orientation of British and German Companies

Earlier analysis of the marketing strategies and organisational characteristics of British and German companies has already given some indication as to their level of marketing orientation. Using the framework outlined in Chapter Two and drawing on that earlier analysis this section seeks to determine the level of marketing orientation within the three samples.

6.9.1 Market Focus

An analysis of market segmentation and target markets (see Tables 6.15 and 6.16) suggests that the three samples adopt

a different approach to these key activities. The findings suggest that most of the British manufacturers interviewed did not adopt a market-led focus and that the German and subsidiary companies appeared to be clearer about their target markets. However, in spite of a poor approach to market segmentation by British manufacturers they did appear to be tailoring their products to meet customer requirements to a similar degree to the Germans. More interesting, though, were the subsidiaries, the majority of whom, did not think that their products were tailored to customer needs. It might be suggested, therefore, that whilst the German manufacturers are willing to tailor products to customer requirements in their domestic market they are less flexible in Britain.

Table 6.38 How Management receives Market Information

How does management receive market information?			
	formal reports 1	2	verbal reports 3
British %	31.3	18.8	50.0
German %	91.7	0	8.3
Subsidiary %	54.5	27.3	18.2

Chi-square = 12.19; *df* = 4; Significance = .016
Sample size: British = 16 German = 12 Subsidiary = 11

Although no significant difference was found between the three samples in the frequency of information gathering on customers, competitors and market share there was a distinction in the way in which management received that information. As Table 6.38 shows, the market information process would appear to be more formalised in German

companies which suggests that German manufacturers are more actively involved in market data collection and analysis. Meanwhile, British managers were found to place more emphasis on informal verbal reporting of market conditions which suggests that little formal data is available with which to make important target marketing decisions. It is also interesting that more of the subsidiaries received market information in a formal manner. This is probably because much data is fed to them from Germany and they in turn supply their parent company with written reports.

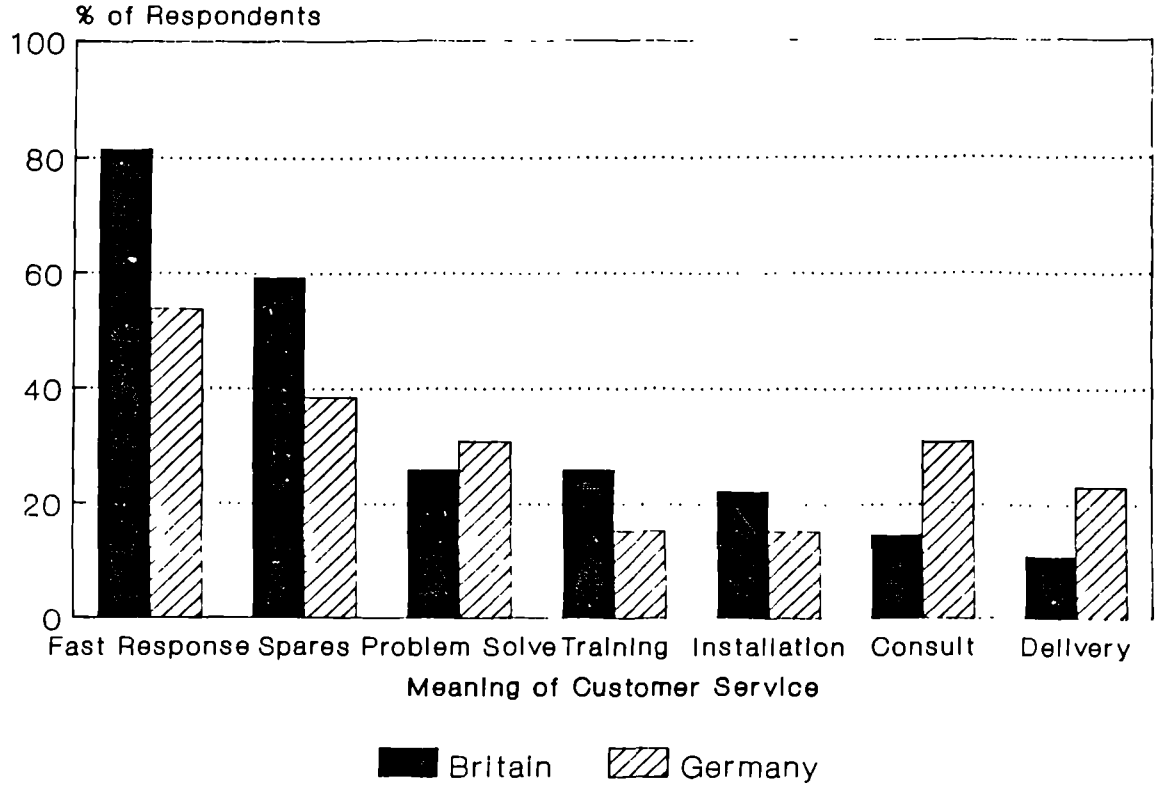
6.9.2 Customer Orientation

The level of customer orientation was assessed by looking at issues relating to target marketing and how much the companies understood the needs of their key customers. The literature suggests that British manufacturers have a poor customer orientation (Turnbull and Cunningham 1981, Reid and Schlegelmilch 1990). In addition the majority of respondents agreed that customer contact on a long-term continuing basis was very important to them.

No difference was found between British and German companies in the level of importance attached by their customers to low price, product quality, customer service and product availability. Customer satisfaction was, however, considered by all companies interviewed to be very important, but it is interesting to assess whether or not the companies actually measured it. Only 10 companies (25%) claimed to measure

satisfaction in any way, with the most common method used being mail surveys (British 18.8%; German 30.8%; Subsidiary 27.3%). A much smaller percentage of managers said that senior managers, often the Managing Director, visited customers to assess their level of satisfaction. Other companies claimed to use more indirect routes to measure satisfaction with some British companies logging the number of call-outs to breakdowns and the subsequent time to mend a fault. This, however, is more an assessment of the company's own service performance rather than a true measurement of customer satisfaction and demonstrates a lack of market focus. Most managers interviewed were confident that their customers were satisfied because as several respondents said "We don't really measure customer satisfaction because we always hear if the customer is unhappy".

Figure 6.1 Meaning of Customer Service



Customer service was also found to be important to all respondents, but it was interesting to observe what this activity meant to different companies. As can be seen from Figure 6.1 the British and subsidiary companies took a traditional view of customer service with quick response, spares availability and training being the most common elements. Meanwhile, more German managers saw the provision of problem solving and consultancy skills as being an important part of customer service. This could well be a reflection of the fact that the German machine tool manufacturers appear to be further along the industry life cycle than their British counterparts. It is interesting that so few respondents saw delivery as being part of the customer service activity. This could well be because delivery and product availability were universally seen as being major company weaknesses.

In addition to assessing the importance of and the elements of customer service a further indication of the level of service provision is in the way in which this important activity is handled within the sample companies. As Table 6.39 shows over two and a half times as many of the German manufacturers had a separate service department to the British. Only one subsidiary had a dedicated service department. However, this is likely to be a reflection of the bias towards larger companies in the German sample. A high proportion of British and subsidiary companies gave responsibility for customer service to either the Service or Works Manager. Where this was the case this manager tended

to be the only person on the service side with at the most one service engineer. More interesting, though, is that over 18% of the British and subsidiary companies interviewed did not have anyone responsible for customer service at all reflecting a low level of commitment to this key activity. This finding is surprising for the subsidiaries as they are predominantly sales and service organisations, although the influence of size should not be ignored.

Table 6.39 How Customer Service is Handled

Responsibility	British %	German %	Subsidiary %
No one	18.8	8.3	18.2
Dedicated dept.	31.3	83.3	9.1
Sales dept.	12.5	8.3	36.4
Service/Works Mgr	37.5	0	36.4

Chi-square = 16.31; *df* = 6; Significance = .012
Sample size: British = 16 German = 12 Subsidiary = 11

British and German manufacturers were also questioned about the involvement of customers in the new product development process. No difference was found in the extent to which customers were involved but Table 6.40 highlights the different ways in which customers were involved. It is interesting that more British manufacturers seemed to involve their customers in product testing than their German rivals, however, through the use of simultaneous engineering some German manufacturers were tying in with their customers from the need-recognition stage right through to installation and after-sales service. More interesting, though, is the observation that twice as many German

companies said that they were adapting products to meet specific customer needs. From the results presented in Table 6.16 one would expect to find no difference between the two groups, which throws some doubt on whether the British manufacturers are in fact designing products to meet specific customer requirements.

Table 6.40 How the Customer is involved in the Development of New Products

Involvement	Britain %	Germany %	Significance
Product testing	31.1	8.3	.143
Simultaneous Engineering	0	16.7	.090
Adapt products to customer needs	25.0	50.0	.171

Sample size: British = 27 German = 13

The above discussion suggests that, through the use of a more formalised market information process, the commitment to customer service and the adaptation of products to meet customer needs, that German manufacturers more customer oriented than their British counterparts.

6.9.3 Coordinated Marketing

Earlier evidence points to the observation that the majority of participating companies adopted functional organisational structures and were predominantly product-oriented in their approach to business. The level of inter-departmental cooperation, however, appeared to differ with more German

companies integrating their functional areas effectively in order to ensure the success of their companies (see Table 6.36). Only 14 companies were found to have a separate marketing department. Although Parkinson (1984) and Simon (1990), in separate studies observed that few German machinery manufacturers have a marketing department this does not appear to be the case in this research. It is interesting, however, to analyse the functions performed by these departments. All departments were found to be responsible for advertising and promotion, but as Table 6.41 shows those German companies with a marketing function undertook a wider range of activities. Nearly three-quarters of the German marketing departments had responsibility for marketing planning and market research, whilst over 85% were monitoring their competitors. These results, albeit from a very small sample, would seem to suggest that those German companies with a marketing department were less concerned with the trappings of marketing than their British counterparts.

Table 6.41 Function of the Marketing Department

Function	British %	German %
Marketing planning	28.6	71.4
Market research	28.6	71.4
Monitor competition	42.9	85.7

Sample size: British = 7 German = 7

6.9.4 Profitability

The discussion of strategic objectives and strategic focus has already revealed the importance attached by British and subsidiary companies to short-term profitability (see Tables 6.10 and 6.13). An analysis of the profitability levels of the three samples shows that more British and subsidiary companies reported higher profits than their German rivals (see Table 6.42). However, it is important that these results are looked at in the light of the goals pursued by the participating companies and that, in the case of the German companies it would appear that profitability is achieved not because they have it as a deliberate goal, but more as a result of meeting customer demands by supplying quality, reliable products.

Table 6.42 Profitability Levels

Profit level*	British %	German %	Subsidiary %
Negative	7.1	0	9.1
0 to 10%	28.6	90.0	72.7
over 10%	64.3	10.0	18.2

* Net profit before tax as a percentage of turnover

Chi-square = 11.17; *df* = 4; Significance = .025
Sample size: British = 14 German = 10 Subsidiary = 11

6.9.5 Competitor Orientation

Managers in the three samples appeared to have a good awareness of the competitive nature of the machine tool

market, in spite of a number of differences in their view of the market situation (see Section 6.5.4). What is more interesting is the ways in which the three sets of companies are responding to these competitive pressures. Whilst the British manufacturers and subsidiaries appeared to be emphasising product attributes as their key strengths, the German companies seemed to be turning their attention more towards customer-based factors as a way of creating and sustaining a competitive advantage (see Table 6.20). However, Table 6.19 suggests that low price is still a key issue for many British manufacturers.

6.9.6 Innovation

The finding presented in Tables 6.21 and 6.22 suggest that German companies exhibit a greater commitment to R & D than their British counterparts. It should be noted, though, that many British companies appeared to understand the need to invest in new products and as a percentage of turnover many were outspending their German competitors. However, the results of this research suggest that, in real terms, the British machine tool manufacturers are still lagging behind the Germans in innovation. One disillusioned Managing Director observed "The British industry is investing too little, too late".

6.9.7 Long-Term Business Perspective and Marketing as a Business Philosophy

Earlier discussions have pointed to the adoption of a short-term business perspective on the part not only of the British machine tool manufacturers but also the subsidiaries of German manufacturers (see Table 6.10). Meanwhile, the German companies interviewed appeared to be more concerned with building a longer-term business by concentrating on goals of product and market expansion to be achieved through the pursuit of strategies based on product quality and reliability. However, the findings from the interviews with the subsidiaries do sometimes question whether the German manufacturers are pursuing the same goals and strategies in the British market. It is important to note that none of the companies were actively pursuing a marketing orientation preferring to stay with the product orientation which has brought many of them their success in the past.

6.10 Examination of the Proposition Relating to Market Orientation

The degree of marketing orientation of the British and German machine tool manufacturers is discussed below, but given the small sample sizes it is not possible to draw any inferences about the marketing orientation of the machine tool sector as a whole.

H2 It was hypothesized that, although predominantly product-oriented, German companies display a higher level of marketing orientation than their British counterparts (Turnbull and Cunningham 1981). The German companies interviewed did appear to display a greater market focus and customer-orientation in terms of their approach to target marketing and adapting products to meet customer needs. They seemed to adopt a more coordinated approach to their major markets with all departments apparently working well together to ensure the success of their company. British companies appeared, on average, to be more profitable than their German rivals, but this was likely to be the result of the emphasis they placed on short-term profitability as a key company goal rather than the result of a successfully implemented marketing orientation. The findings of this research suggest that the German manufacturers interviewed were more innovative with up-to-date products that better met customer needs. Coupled with the pursuit of longer term strategies based on product quality and reliability it would appear, therefore, that, although still principally product-led, the German machine tool manufacturers interviewed did display a greater level of marketing orientation than their British counterparts with the result that this proposition is supported.

7.0 ANALYSIS OF THE MARKETING STRATEGIES AND ORGANISATIONAL CHARACTERISTICS OF SUCCESSFUL AND LESS SUCCESSFUL COMPANIES

7.1 Introduction

A valuable extension to the comparative study of the marketing strategies and organisational characteristics of British and German companies is to assess the key differences between those companies which are performing well and those which are less successful irrespective of country of origin.

This chapter, therefore, seeks, through the use of the frameworks discussed in Chapter Two to assess the propositions relating to successful companies. Firstly, the methodology associated with this part of the research is presented and then the two groups of companies are profiled and, by using contingency tables and the chi-square test, the key differences between them are analysed.

7.2 Methodology

In the interviews conducted with the participating companies, managers were asked to assess their own level of success within the industry. This measurement, however, was rather crude as no exact measures were specified. In addition, it is widely recognised that self-assessment can be highly biased (Saunders et al 1991). Given the

difficulties in obtaining accurate data on the financial and market performance of the German manufacturers over the last five years it was decided that peer group evaluation should be used as a means of rating the success of the 40 participating companies. Although more subjective than absolute measures this method has proved to be robust in other research (eg. Doyle et al 1989, Speed and Smith 1991) and in some instances has been found to compare favourably with more objective success measures (eg Venkatraman and Rumanujam 1986). The MTTA was also approached by telephone to determine whether they would be prepared to provide an independent expert opinion of the performance of the participating companies, but they declined, saying that their knowledge of individual companies was not sufficiently detailed to allow an accurate rating of success.

A questionnaire *combining subjective and objective measures* was, therefore, devised (see Appendix L). Respondents were required to rate, on a five point scale, the other participating companies according to the following definition of success:

" Successful companies are those that, in the past five have:

1. consistently achieved annual sales and profit growth above the industry average
2. consistently out-performed their major competitors in terms of market share"

At the time of conducting the interviews it was not known which manufacturers would be willing to participate in the study, therefore, a peer group evaluation of performance could only occur once all the interviews had been completed. The success rating questionnaire was designed so that it would only take a short time to complete and participants were contacted by telephone.

All the responses received were aggregated and, because not all respondents were able to comment on every company, a median score for each manufacturer was calculated. This score is taken to represent the success rating of each of the participating companies. Two groups (successful and less successful) were then created with those companies scoring four or five being rated as successful and those with a score of one, two or three rated as less successful. This resulted *in a breakdown of 20 successful and 20 less* successful companies.

7.3 Characteristics of Successful and Less Successful Companies

Table 7.1 shows a clear distinction between the success rating of a company and its country of origin with significantly more German manufacturers being rated as successful than their British counterparts. By contrast the majority of less successful companies came from the British sample. Given the state of the industry in the two countries this result does not hold many surprises.

Table 7.1 Success Rating by Country of Origin

Country	Less Successful %	Successful %
Britain	65	15
Germany	15	50
Subsidiaries	20	35

Chi-square = 10.84; *df* = 2; Significance = .005
Sample size: Less Successful = 20 Successful = 20

A close examination of the success ratings according to country of origin reveals that, of the 13 German companies interviewed, 10 (76.9%) of them were regarded by their peers as successful. By contrast 13 (81.2%) of the British companies were rated as being less successful. Taking the subsidiaries as a separate group it is interesting to note that, of the 11 companies interviewed, 7 (63.6%) came into the successful category. So many Subsidiaries could be successful because they only sell the quality products manufactured by their German parents. It is interesting, nevertheless, is that they are all run by British managers who claim to operate with full autonomy. This suggests, therefore, that British managers can run successful companies. The cluster analysis presented in Chapter Eight will help to determine whether the successful subsidiaries display similar characteristics to successful German companies or successful British manufacturers or indeed whether they possess unique characteristics.

Although the results are not significant, it is interesting, at this point, to compare the peer group performance

evaluation with that of the respondents view of their own performance. As Tables 7.2 and 7.3 show the British respondents have a much higher opinion of their performance than their peers, particularly when measured against their self-selected success criteria.

Table 7.2 Assessment of Performance Measured against Own Success Criteria

Country	Less Successful %	Successful %
Britain	25.0	75.0
Germany	15.4	84.6
Subsidiaries	36.4	63.6

Table 7.3 Assessment of Performance Compared to Industry Average

Country	Less Successful %	Successful %
Britain	43.8	56.2
Germany	46.2	53.8
Subsidiaries	45.5	54.5

Meanwhile, in terms of the industry average, the German manufacturers are more reserved about their performance, although, as with the British companies, when considering their own organisational measures of success many more of them rate themselves as successful, although it is recognised that in assessing its own performance a company may take a biassed view. However, the peer group evaluation would suggest that the German manufacturers have a more

realistic view of their performance. Particularly interesting are the subsidiaries whose views of their own performance match very closely the scores attained in the peer group evaluation.

Table 7.4 Profile of Less Successful Companies

Characteristics	% of Respondents (n = 20)
Ownership	
Subsidiary	20
Private/family	45
Management buy-out	15
German subsidiary	20
Size	
0 - 199	75
200 - 499	25
Respondent	
Managing Director	80
Sales Director/Manager	20
Turnover (£)	
0 - 9 million	70
10 - 49 million	20
no response	10
Profitability	
below 0%	5
0 - 9%	35
10 - 19%	40
unknown	20

It can be seen from the profiles of the two sets of companies, presented in Tables 7.4 and 7.5 that, in terms of company ownership, the main difference is the number of publicly-quoted companies in the successful sample. This links in with the size of the companies in the two groups with a clear bias towards larger companies in the successful sample, which is to be expected given that so many of the

German companies are in this group. In the case of the less successful companies there is a clear relationship between size and turnover. This is less clear in the successful sample as more of the smaller companies having higher turnovers. The respondent profile shows that, in the less successful companies, 80% of those interviewed were Managing Directors, although this can be explained by the bias towards smaller companies in this sample.

Table 7.5 Profile of Successful Companies

Characteristics	% of Respondents (n = 20)
Ownership	
Subsidiary	10
Private/family	30
Management buy-out	5
Publicly-quoted	20
German subsidiary	35
Size	
0 - 199	35
200 - 499	10
500 or more	55
Respondent	
Managing Director	35
Sales Director/Manager	40
Marketing Manager	25
Turnover (£)	
0 - 9 million	20
10 - 49 million	30
50 million or more	50
Profitability	
below 0%	5
0 - 9%	70
10 - 19%	15
over 20%	5
unknown	5

Finally, taking profitability into account, the successful companies are clearly reporting higher levels of return than

their less successful counterparts. It is interesting though that one company in the successful sample is showing a negative contribution. This could potentially be the result of a mis-classification or the company has got a very good image in the marketplace such that all the other participants are of the opinion that this company is very successful. Another, more likely explanation, is that in assessing the performance of a subsidiary the respondents have given their opinions based on their parent company.

7.4 The Marketing Strategies of Successful and Less Successful Companies

Using the frameworks discussed in Chapter Two the marketing strategies of the two groups of companies were examined. Given that so many of the German manufacturers were considered to be successful it is to be expected that many of the differences found between successful and less successful companies mirror those found in the Anglo-German comparison. There are, however, a number of other interesting factors which distinguish less successful companies from the more successful manufacturers. In discussing the differences between the two groups it is recognised that, whilst size itself is no guarantee of success, larger companies are likely to have better resources at their disposal which may have an impact on their organisational characteristics and their approach to marketing strategy.

7.4.1 Strategic Objectives

Table 7.6 Company Goals

How important will the following company goals be in the next five years?						
		not at all important				very important
		1	2	3	4	5
Survival						
Less Successful	%	5	5	5	15	70
Successful	%	40	20	15	10	15
Chi-square = 15.56; *df* = 4; Significance = .004						
Prevent decline of market share						
Less Successful	%	5	10	15	40	30
Successful	%	20	15	35	15	15
Chi-square = 6.87; *df* = 4; Significance = .142						
Improve Productivity						
Less Successful	%	10	5	10	25	50
Successful	%	0	5	10	60	25
Chi-square = 6.55; *df* = 4; Significance = .161						

Sample size: Less Successful = 20 Successful = 20

Less successful companies were found to adopt more defensive strategies with survival being a top priority to 70% of them (Table 7.6). Closely related to this is the desire by more of the unsuccessful companies to prevent a decline in their market share. However, a heavy emphasis on short-term profits did not emerge as a distinguishing factor between successful and less successful companies. In addition, it would seem that many of the less successful manufacturers believe that survival can best be achieved by improving

productivity rather than through short-term profits or even by expanding into new products and markets (Table 7.6). It is interesting to note, though, that many of the successful companies also consider productivity improvements to be quite important.

Both sets of companies attached high levels of importance to the company goals of 'expansion into new markets' (less successful 65%; successful 80%), 'expansion into new products' (less successful 70%; successful 80%), 'increase market share' (less successful 55%; successful 75%) and balancing short and long-term performance (less successful 50%; successful 55%). Although successful companies were less defensive in their objectives, there is no evidence to suggest that they were significantly more likely to establish longer-term goals than their less successful counterparts. This would appear to contradict the findings of Saunders and Wong (1985) and Baker et al (1988) who found that successful companies were significantly more likely to formulate long-term goals based on market share and growth.

Table 7.7 Use of Market Share as a Measure of Success

Do you use market share as a measure of success?				
YES	Less Successful	25%	Successful	65%

Chi-square = 6.46; *df* = 1; Significance = .011
Sample size: Less Successful = 20 Successful = 20

There was no distinction between the two groups with regard to the criteria used to measure their own success, although more of the successful companies did use market share as a

key measure (less successful 10%; successful 30%) and more of the unsuccessful manufacturers used profits (less successful 40%; successful 25%). However, when specifically asked if they used market share as a means of assessing their own performance significantly more of the successful companies said that they did (Table 7.7). This suggests that more successful companies have a greater market focus with less emphasis on short-term gain.

7.4.2 Strategic Focus

As hypothesized the majority of successful manufacturers pursued strategies based on quality and reliability as a means of differentiating their products (90%). However, the less successful companies were also pursuing such strategies (80%). Unlike the Anglo-German comparison no significant differences were found between successful and less successful companies in terms of the strategies pursued. Although more successful companies were pursuing strategies based on new product development (less successful 15%; successful 45%) there was no significant difference between the two sets of companies. In addition, the priority attached to the achievement of a good current profit performance was the same in both samples, but there was a difference in the importance attached to low price as a means of determining performance.

As Table 7.8 shows, a minority of the less successful companies believe that low price is a key factor in their

performance. Meanwhile significantly more of the successful companies have an aversion to using price as a means of gaining business which supports the observations made by Simon (1990). One successful company pointed out "We are not prepared to sacrifice quality just to get a low price". This aversion to using price as a competitive tool was evident in a number of successful companies and was witnessed in a determination that quality was the key to gaining business.

Table 7.8 Importance of Low Price to Performance

How important is low price to your performance?						
		not at all important				very important
		1	2	3	4	5
Less Successful	%	30	10	40	10	10
Successful	%	5	60	25	10	0

Chi-square = 13.41; *df* = 4; Significance = .009
Sample size: Less Successful = 20 Successful = 20

Many respondents accepted that they could use price to gain business if they so chose but as one Managing Director said "We could lower our prices to increase market penetration but we don't want to". When asked to compare their prices with those of their competitors only 10% of the less successful companies said that their prices were lower. One likely reason why low price is of less importance to the successful companies is that they are concentrating on producing quality machine tools which can command higher prices. As one Sales Director clearly stated "Our quality wins us orders where we are not competitive on price". This view is supported when the product orientation of the

companies is considered in Table 7.9. Although companies in both groups are predominantly product-led, significantly more of the successful companies adopt this approach to business. The importance of product-related issues was also observed by Hooley and Jobber (1986) in successful companies. Meanwhile a higher degree of sales-orientation was evident in many of the less successful companies, although this result was not significant.

Table 7.9 Product Orientation

How much does the following reflect your company's approach?						
Our performance is determined by producing quality goods at the best possible price						
		not at all				exactly
		1	2	3	4	5
Less Successful	%	0	0	15	20	65
Successful	%	0	5	5	0	90

Chi-square = 6.81; *df* = 3; Significance = .078
Sample size: Less Successful = 20 Successful = 20

This finding on company orientation is particularly interesting as many previous studies have concluded that success can be achieved, in part, by adopting a marketing orientation (eg. Narver and Slater 1990, Hooley et al 1990, Kotler 1991). In this research the successful companies are clearly product-led. When one considers the industry being studied it is understandable that product issues should be of such paramount importance. However, being product-oriented does not mean that successful companies in the machine tool industry do not possess characteristics

associated with a marketing-led approach. In a later section successful and less successful companies will be assessed for their degree of marketing orientation.

7.4.3 Customer Targets

As discussed in Chapter Six, all companies were able to identify the key customer groups in the market, however, unlike in the Anglo-German comparison no contrast was found between successful and less successful companies in their approach to customers in their major markets. The literature suggests that successful companies understand the need for target marketing (eg. Peters and Waterman 1982, Hooley and Jobber 1986, Hansen et al 1990, Kotler 1991), however, in this research, although more successful companies did have clearly defined target market segments (less successful 25%; successful 40%) the difference was not significant. Differences were, however, observed in the basis used for segmenting the market. Mirroring the Anglo-German results more of the successful companies segmented their markets on a geographical basis (Table 7.10)

Table 7.10 Basis for Segmenting the Market

Segmentation Base	Less Successful	Successful
Industry	100%	50%
Geographic	0%	50%

Chi-square = 7.37; *df* = 1; Significance = .007
Sample size: Less Successful = 10 Successful = 18

An analysis of the export ratios of the two sets of companies shows that, on average, successful companies export 55% of their turnover compared with only 39% for the less successful companies. This could go some way towards explaining the greater emphasis by successful companies on geographic segmentation.

A further difference was observed with regard to the customer needs that the companies sought to meet. Table 7.11 demonstrates that significantly more successful companies were satisfying a need for more superior products. The market for machine tools has progressed in recent years in technological terms and the successful companies appear to have recognised the need, by customers, for more advanced, precision machine tools. Meanwhile the less successful companies are still supplying predominantly conventional machine tools, the market for which has become immensely competitive since the emergence of cost-effective imports from countries like Taiwan and Korea.

Table 7.11 Customer Needs met by Products

Are your products seen as meeting :					
	basic needs				superior needs
	1	2	3	4	5
Less Successful %	25	0	30	20	25
Successful %	5	0	5	50	40

Chi-square = 9.50; *df* = 3; Significance = .023
Sample size: Less Successful = 20 Successful = 20

Whilst both groups stressed the importance of customer contact the successful manufacturers were concentrating more on building long-term relationships with their customers on a continuing basis (Table 7.12). Building long-term relationships with customers is important because it allows a company to identify much more quickly any changes in customer needs to respond effectively to meet those changing needs. A high percentage of successful companies (75%), not surprisingly, therefore, updated their customer intelligence on a daily basis, although the majority of less successful companies (68.8%) also performed well in this respect.

Table 7.12 Extent of Customer Contact

Is your contact with customers maintained on a:						
		short-term basis				long-term basis
		1	2	3	4	5
Less Successful	%	5	0	5	30	60
Successful	%	5	0	0	5	90

Chi-square = 5.77; *df* = 3; Significance = .123
Sample size: Less Successful = 20 Successful = 20

7.4.4 Competitor Targets

In a highly competitive market dominated by German and Japanese manufacturers it is interesting to observe the difference between successful and less successful companies in their views on the nationality of their major competitors (Table 7.13). Given that such a high proportion of the successful companies are German and that Germany is the

world's leading exporter of machine tools it is not surprising that so many successful manufacturers saw the Germans as their greatest rivals. It is interesting, however, that so few of the top performing companies perceive the Japanese manufacturers as a serious threat. This is in fact quite alarming particularly when it is considered that the Germans have lost their once dominant position as the world's number one machine tool producer to the Japanese. This could indicate an element of complacency on the part of the respondents in the more successful sample.

Table 7.13 Nationality of Major Competitor

Nationality	Less Successful	Successful
British	40%	15%
German	25%	70%
American	15%	10%
Japanese	20%	5%

Chi-square = 8.20; *df* = 3; Significance = .042
Sample size: Less Successful = 20 Successful = 20

It is interesting to note that 40% of the less successful manufacturers see British companies as their main competitors, however, this could be because the less successful companies (which are predominantly British) are operating principally in their domestic market. Nevertheless, Table 7.13 still shows that the Germans appear to have a stronger competitive position than their British counterparts.

No significant differences were found in the strategies pursued by the respondents key competitors with the largest number of managers citing low price as the strategy most often pursued by their rivals (Less Successful 47.4%; Successful 45%). Unlike the Anglo-German comparison there was no distinction in the prices charged for their products although the comments received from the respondents in successful companies tended to suggest that they are only interested in premium pricing policies and as a result are not prepared to compete on the basis of price.

Table 7.14 Comparison of Product Performance with Competitors

With regard to the following factors, how does your performance compare with that of your competitors?					
Product range	much narrower				much broader
	1	2	3	4	5
Less Successful %	15	30	15	25	15
Successful %	0	10	40	20	30
Chi-square = 8.38; *df* = 4; Significance = .078					
Product performance	much worse				much better
	1	2	3	4	5
Less Successful %	0	0	45	30	25
Successful %	0	0	80	20	0
Chi-square = 7.36; *df* = 2; Significance = .025					

Sample size: Less Successful = 20 Successful = 20

There were, however, some surprising differences in the opinions of the respondents about their product range and

product performance (Table 7.14). This suggests that quite a high proportion of less successful companies have narrower product ranges which is likely to be a limiting factor in their ability to be competitive. The more interesting result though is the 25% of less successful manufacturers who believe that their product performance is much better than that of their competitors. With the convergence of technology and the difficulties of achieving a sustainable advantage in product terms in a mature market this claim is difficult to take seriously. When viewed in the light of the comments made by certain respondents it can be concluded that these companies have too high an opinion of their products.

This finding is worrying because their performance suggests that the customers do not share their view. Many, it would seem, base their view on past performance. As one Managing Director proudly announced "We have always lived off our name and technical expertise". There is evidence that many are still trying to do this and have thus failed to keep pace with market changes. They may also be basing their stand-point on factors such as how long their machines have been in the market. As one respondent took great pains to point out "Some of our machines are over thirty years old and they are still in the market and functioning perfectly". Meanwhile the successful companies take the more realistic view that their product performance is the same as or, at the very best, only slightly better than that of their competitors.

One possible reason for the high opinion that many of the less successful companies have of their product performance is that they are less well-informed of their competitors' activities than the successful manufacturers. Table 7.15 shows that, over half of the less successful companies are only updating their competitor information once a year or in many cases less frequently. Some less successful companies do collect market information but then do not use it effectively. As one respondent noted "We *do* receive statistics on the competition from the trade association but we do nothing with them". A key to market success is the regular up-dating of competitor information, something which less successful companies are clearly poorer at, as one Managing Director admitted "We don't really update information on competitors and customers".

Table 7.15 Frequency with which Competitor Information is Up-dated

Frequency	Less Successful %	Successful %
yearly or less often	55.6	20.0
3 - 6 monthly	5.6	45.0
monthly	5.6	5.0
daily	33.3	30.0

Chi-square = 8.89; *df* = 3; Significance = .031
Sample size: Less Successful = 18 Successful = 20

7.4.5 Differential Advantage

An analysis of the competitive advantage of successful and less successful companies reveals an interesting split in opinion. As Table 7.16 demonstrates, the less successful companies, as was the case with the British manufacturers, predominantly saw their strengths in product-based factors.

Table 7.16 Key Strengths Relative to the Competition

Strengths	Less Successful %	Successful %
Product-based	63.2	40.0
Engineering skills	21.1	15.0
Customer-based	15.8	45.0

Chi-square = 3.92; *df* = 2; Significance = .141
Sample size: Less Successful = 19 Successful = 20

This, of course, links in with the view held by many of the managers in these companies that their product performance was much better than that of their competitors. Meanwhile there was an even split between the successful companies with 40% citing product-based advantages and 45% mentioning customer-based attributes. This supports the findings of Doyle et al (1986) and Buzzell and Wieresma (1981) who found that successful companies created a differential advantage in terms of either product or service. This is no doubt a reflection of the importance of product issues in the market for machine tools and the possibility that many manufacturers have, in fact, been successful as a direct result of their product-led approach to business. Therefore, they are now turning their attention towards customer-based

issues such as offering excellent service and problem solving capabilities.

Given the importance attached to product-related issues in the machine tool industry it is interesting to assess the importance attributed to R & D and the need to develop new products in order to maintain a competitive edge. As Table 7.17 shows, although a high proportion of the less successful companies claim to possess a flexible and responsive R & D capability, it is notable that a significant number of them do not. Not one of the successful manufacturers denied having such a facility.

Table 7.17 Research and Development Capabilities

How much does the following statement describe your company?						
Flexible and responsive R & D capability						
		not at all				exactly
		1	2	3	4	5
Less Successful	%	20.0	13.3	0	0	66.7
Successful	%	0	0	23.1	23.1	53.8

Chi-square = 11.44; *df* = 4; Significance = .022
Sample size: Less Successful = 15 Successful = 13

7.4.6 Marketing Mix

Product

As has already been established the majority of sample companies are product-oriented. It is, therefore, not surprising that so many of them place a high emphasis on the

product element of the marketing mix. However, an analysis of the average age of products sold (Table 7.18) reveals some surprising and almost conflicting findings.

Although the response rate was low it is interesting that a higher proportion of less successful companies are selling products developed in the last ten years. This begs the question 'Why are they then not more successful?' It could well be that they are developing new products, but that they are not developing them in line with customer needs. This view would certainly seem to be supported in the light of the comment by one Sales Director of a less successful company "We will get the best technology regardless of whether it is what the customer wants. As a manufacturer we have no regard to the market" - this would appear to be a product-orientation in the true sense of the word!

Table 7.18 Average Age of Products Sold

Product age	Less Successful %	Successful %
less than 10 years	46.2	35.7
11 to 20 years	0	28.6
over 20 years	53.8	35.7

Chi-square = 4.39; *df* = 2; Significance = .111
Sample size: Less Successful = 13 Successful = 14

In terms of research and development it has already been shown that some less successful companies have a flexible and responsive capability, which no doubt explains why so many of them sell products developed in the last ten years.

A truer reflection of the commitment to new product development, however, is only gained by examining the levels of investment in R & D. Taking the eight less successful companies who gave this information the average expenditure on R & D was 6.5% of turnover. By contrast the 11 successful companies who gave details were only spending an average of 4.8% of their turnover on R & D.

There are a number of possible explanations for this interesting finding. The higher expenditure on the part of the less successful companies could be a reflection of the realisation that, in order to survive and remain in business beyond the short-term, they need to invest in products for the future. It could be that the companies disclosing this information are unique in recognising the importance of new product development and that those who did not answer this question do not invest in R & D at all, either because they do not understand the need to be competitive or because they are complacent. (The cluster analysis presented in Chapter Eight helps to establish whether or not there is a particular group of companies in the less successful sample with a certain set of characteristics which might mean that they are teetering on the verge of success). The lack of importance attached to this activity by some managers in less successful companies can be seen in the following comment by one Managing Director "R & D doesn't appear as a separate item on the budget so I couldn't even guess how much we spend". Comments like this more than likely indicate that they are spending nothing. Meanwhile the lower levels

of expenditure as a percentage of turnover in successful companies in the past five years could also reflect a certain level of complacency. However, in actual monetary terms it must be borne in mind that actual spending will be higher in successful companies given their higher turnovers. In addition, many of these companies have been continuously investing in R & D over the years such that sudden increases in expenditure are unnecessary. Alternatively as Rommel (1991) observed successful manufacturers are concentrating their investment in R & D such that expenditure on individual products is greater than in less successful companies.

It has already been noted that less successful companies tend more towards providing basic conventional machine tools. Their higher levels of expenditure on R & D could be a reflection of their understanding of the need to develop products aimed more at the top end of the market. The higher rates of spending could also be aimed towards increasing their product range which they already acknowledge is narrower than their rivals (Table 7.14). The earlier finding relating to product performance could also be supported by the R & D expenditure by less successful companies. Alternatively it could be the anticipated outcome of recent investment in new products.

Price

Price as a key element of the marketing mix would appear to be used more by the less successful companies for, although

80% of these respondents claimed that their prices were the same as or slightly higher than those of their competitors, Table 7.8 shows that low price was of an average to high level of importance to the same group of companies. Given that they are selling predominantly conventional machine tools in which it is difficult to create a sustainable competitive advantage it is not really surprising that price is seen as a good means of differentiation.

Distribution

Table 7.19 Mode of Operation in World-wide Markets

Mode of Operation	Less Successful %	Successful %
Direct export	43.8	0
Agents	56.3	84.6
Subsidiaries	0	15.4

Chi-square = 8.99; *df* = 2; Significance = .011
Sample size: Less Successful = 16 Successful = 13

Significant differences were found between successful and less successful companies in both their world-wide and European distribution strategies. Tables 7.19 and 7.20 highlight the fact that significantly more of the less successful companies rely on direct export as a means of gaining overseas business. This could, of course, be a reflection of company size, but the earlier discussion of export activity points towards a higher level of internationalisation on the part of the successful companies. An emphasis on direct export by less successful

companies also suggests that these companies operate in overseas markets on a more ad hoc basis.

It is interesting that almost none of the successful companies operate overseas through direct export with the use of agents the most common mode used. The use of subsidiaries in Europe by nearly 40% of successful companies is not only a reflection of company size, but also demonstrates a commitment to serving overseas customers as a way of expanding their business (Table 7.20)

Table 7.20 Mode of Operation in European Markets

Mode of Operation	Less Successful %	Successful %
Direct export	43.8	7.7
Agents	56.3	53.8
Subsidiaries	0	38.5

Chi-square = 9.54; *df* = 2; Significance = .008
Sample size: Less Successful = 16 Successful = 13

Promotion

Not surprisingly, significantly more successful companies had a marketing department (Table 7.21), although the existence of a marketing department is no guarantee of market success (Ames 1970). In those companies with a separate marketing function all had responsibility for advertising and promotional activities. In companies without this facility it was generally the Managing Director or Sales Director who directed these activities.

Table 7.21 Existence of Marketing Department

Does your company have a separate marketing Department?				
YES	Less Successful	20%	Successful	55%

Chi-square = 5.23; *df* = 1; Significance = .022
Sample size: Less Successful = 20 Successful = 20

It has been observed by Doyle et al (1986) that successful companies have a high expenditure on promotion, but an analysis of the average expenditure on promotional activities in this research revealed an interesting contrast between the two sets of companies. Of the 13 less successful companies who gave this information the average spend was 3.6% of turnover, by contrast the 16 successful companies answering this question had an average promotional expenditure of only 2.7% of turnover. Unlike the Doyle et al (1986) study the less successful companies were found to be outspending their more successful rivals.

7.5 Organisational Characteristics of Successful and Less Successful Companies

The above discussion has demonstrated that there are a number of significant differences between successful and less successful companies in their strategies. The following sections seek to explore the differences in organisational characteristics of successful and less successful companies and how much they reflect the Anglo-German findings.

7.5.1 Structure

Table 7.22 Organisational Structure

Structure	Less Successful %	Successful %
Functional	100	73.7
Matrix	0	26.3

Chi-square = 5.48; *df* = 1; Significance = .019
Sample size: Less Successful = 18 Successful = 19

As would be expected from the Anglo-German analysis the majority of participating companies were organised along traditional functional lines. However, as Table 7.22 shows significantly more of the successful manufacturers adopted a matrix structure. Whilst size is likely to play a key role here the use of the matrix structure would also indicate a greater degree of organisational flexibility in those companies.

The Anglo-German comparison found that British companies favoured high levels of informality in their organisation structure, systems and style. This theme was also evident in the less successful companies with a higher degree of informality visible than in the organisations of their more successful rivals (Table 7.23). Some of the differences, though do seem to be more pronounced in the comparison of successful and less successful companies with a higher proportion of the less successful manufacturers emphasizing informality in organisation and communications. However, in terms of the type of communications employed there was a

marked split in the less successful sample with roughly equal numbers adopting a top-down approach and a more jumbled approach.

Table 7.23 Description of Organisation Structure

How would you describe your company's organisation?						
		hierarchical fixed				informal ad hoc
		1	2	3	4	5
Less Successful	%	20	15	20	5	40
Successful	%	30	15	20	25	10
Chi-square = 6.67; *df* = 4; Significance = .154						
		Top down Communications				Jumbled Communications
Less Successful	%	40	10	5	10	35
Successful	%	15	20	15	35	15
Chi-square = 8.32; *df* = 4; Significance = .081						
		Formal Communications				Informal Communications
Less Successful	%	0	5	25	10	60
Successful	%	0	20	35	25	20
Chi-square = 7.42; *df* = 3; Significance = .060						

Sample size: Less Successful = 20 Successful = 20

Respondents in both groups claimed to emphasize flexibility within their organisations, although there was a marked difference in the priority given to efficiency and control. Table 7.24 shows that successful companies keep a tighter control of their organisations than their less successful counterparts and by doing so are in a better position to respond quickly to any changes that might occur. No significant difference was found, however, in the extent to

which departments within the organisations cooperated to ensure the success of the company.

Table 7.24 Description of Organisation

How much does the following describe your company's organisation?						
Emphasis on efficiency and control						
		not at all 1	2	3	4	exactly 5
Less Successful	%	5	30	10	25	30
Successful	%	0	0	15.8	57.9	26.3

Chi-square = 9.52; *df* = 4; Significance = .049
Sample size: Less Successful = 20 Successful = 19

7.5.2 Systems

Table 7.25 Planning Systems

How much do the following describe the approach of your company to planning?						
Formal long-term plans						
		not at all 1	2	3	4	exactly 5
Less Successful	%	65.2	10.5	0	0	26.3
Successful	%	20.0	5.0	5	15	55.0
Chi-square = 10.56; *df* = 4; Significance = .032						
Formal medium- to short-term plans						
Less Successful	%	31.6	10.5	0	15.8	42.1
Successful	%	10.0	0	10	5.0	75.0
Chi-square = 9.11; *df* = 4; Significance = .058						

Sample size: Less Successful = 19 Successful = 20

Research suggests that successful companies are more active in planning than their less successful counterparts (eg.

Baker et al 1988, Hooley and Lynch 1985). Table 7.25 also shows a commitment, on the part of the majority of successful companies, to planning both in the long- and short-term. Particularly notable is the 65% of less successful companies who do not develop five year plans at all (although it is interesting to observe that in 20% of the successful companies this is also the case). But viewed in the light that 70% of the less successful companies are pursuing a key objective of survival it is perhaps not surprising that they are unable to think beyond the coming year.

In spite of the differences in the planning systems between the two sets of companies it is interesting to note that there was little distinction in the control mechanisms employed. Although more of the successful companies formally assessed their goals and objectives (less successful 26.3%; successful 40%) and were prepared to take any necessary corrective action (less successful 21.1%; Successful 45%) the differences were not significant. However, the earlier discussion of the emphasis placed on efficiency and control does suggest that successful companies are more rigourous in their procedures by maintaining tighter control of their organisations which a view shared by Hooley and Lynch (1985) and Goldsmith and Clutterbuck (1985).

Further evidence of the higher levels of informality in the less successful companies is provided in Table 7.26 which shows the degree of control and supervision to be looser in

these companies than in their more successful rivals. Although more of the successful companies claim to operate tighter control systems Table 7.26 suggests that in terms of overall supervision they try to find a better balance between the need for tight control and the need for delegation.

Table 7.26 Degree of Control and Supervision

How would you describe the degree of control and supervision in your organisation?						
		very loose 1	2	3	4	very tight 5
Less Successful	%	10.5	42.1	36.8	5.3	5.3
Successful	%	0	21.1	42.1	36.8	0

Chi-square = 8.90; *df* = 4; Significance = .064
Sample size: Less Successful = 19 Successful = 19

7.5.3 Staff and Skills

It is most interesting to observe that the contrasts identified in the backgrounds and qualifications of British and German managers did not translate through as differences between successful and less successful companies. As would be expected in such a technical industry the largest percentage of managers interviewed came from an engineering background. It was, however, of interest that, although not a significant difference, more of the managers in less successful companies (61.1%) were educated to degree level than the managers in their successful competitors (50%). It should, though, also be noted that over 20% of the respondents in the less successful companies possessed no

formal qualifications at all. Information, however, was only available from 60% of the successful respondents and 90% of less successful respondents.

Table 7.27 Percentage of Managers who had Worked in Other European Countries

Have you or any of your managers worked in other European countries?				
YES	Less Successful	11.8%	Successful	36.8%

Chi-square = 3.01; *df* = 1; Significance = .083
Sample size: Less Successful = 17 Successful = 19

The importance of foreign languages to organisational performance was found to be similar in the two sets of companies, although the successful companies were found to be more international in their outlook when both export ratios and the percentage of managers who had worked in other European countries were considered (Table 7.27).

A high level of importance was attached by managers in both successful and less successful companies to management training. However, when specifically asked if their company provides management training a significant difference emerged with more of the successful manufacturers offering training to managers (Table 7.28).

Table 7.28 Management Training

Is your company active in management training?				
YES	Less Successful	45%	Successful	78.9%

Chi-square = 4.74; *df* = 1; Significance = .029
Sample size: Less Successful = 20 Successful = 19

When considered more closely no significant differences existed between the two groups with regard to their approach to management training as both claimed to have a heavy emphasis on in-house training (less successful 68.4%; successful 42.1) and on-the-job training (less successful 89.5%; successful 84.2%) suggesting that in many instances very little or no management training is actually provided. This view is supported by the numerous comments by respondents on this subject. One Managing Director sheepishly admitted "It is embarrassing but training is non-existent". As in the Handy (1987) study many respondents were of the firm belief that there is no match for experience, witness the following comments "Management experience is all important. Training is secondary. I am not a believer in courses", and "We've got where we are through experience not training". Some were less dismissive of training and more realistic about their own performance as one Managing Director of a less successful company said "Training is our weakness". In other companies, including successful ones, the emphasis was still on technical superiority rather than management ability. As one respondent noted "Management development is not well developed because we try to be the best technically". Even the successful companies that recognised the importance of management training relied quite heavily on experience. As one Sales Director commented "Management training is important, but you learn through experience and not through training". One Sales Manager sheds some light on the attitude to management training in the machine tool

industry, particularly in Britain, and he no doubt speaks for many when he said "I have been with the company seven years and have been on no training courses. Most skills come from training with previous companies".

In spite of the similarities in the approaches to management training there was a distinction between the two sets of companies in the average number of days spent by managers on training courses. Table 7.29 supports the response given by the less successful companies that few of them are involved in any form of management training and would also seem to bear out the earlier finding that successful companies are more active in this area.

Table 7.29 Days Spent by Senior Managers on Training Courses

Days training	Less Successful %	Successful %
0	57.9	23.5
1 - 5	5.3	29.4
6 - 10	26.3	23.5
over 10	10.5	23.5

Chi-square = 6.62; *df* = 3; Significance = .085
Sample size: Less Successful = 19 Successful = 17

However, the observation made in Chapter Six that the number of days spent on training courses by German managers includes both technical and management training still applies and is likely to influence the results of this analysis.

An analysis of the distinctive skills and abilities of the managers in the participating companies revealed no significant differences with respondents in both successful and less successful manufacturers highlighting similar strengths in technical skills, man-management and the ability to respond quickly to market changes.

7.5.4 Style and Shared Values

An analysis of the management style of successful and less successful companies revealed a number of contrasts. The high levels of informality observed within the less successful companies in earlier findings was again in evidence in their management style which would appear to be contrary to the observations made by Saunders and Wong (1985). Table 7.30 shows that this informality is particularly present in the communications channels employed by these companies. Meanwhile successful companies are aiming to find a balance between formality and informality.

Table 7.30 Management Style

How much does the following describe your company's communications channels?						
		very formal 1	2	3	4	very informal 5
Less Successful	%	10	15	5	20	50
Successful	%	5	15	30	30	20

Chi-square = 6.88; *df* = 4; Significance = .142
Sample size: Less Successful = 20 Successful = 20

However, as Table 7.31 shows, informality can play a positive role as in the less successful companies it meant that the communications between management and employees was more frequent.

Table 7.31 Frequency of Communications

How much does the following describe the frequency of communications between management and employees?						
		very infrequent 1	2	3	4	very frequent 5
Less Successful	%	0	5	10	30	55
Successful	%	0	0	35	45	20

Chi-square = 7.64; *df* = 3; Significance = .054
Sample size: Less Successful = 20 Successful = 20

Meanwhile the successful companies were biased more towards a formal communications style which was also reflected by the greater amount of time spent by senior managers in meetings (Table 7.32). This time spent in top level meetings seems, in addition, to reflect the priority given to planning in the two sets of companies.

Table 7.32 Frequency of Top Level Meetings

How often do senior executive meetings occur?						
		very rarely 1	2	3	4	very regularly 5
Less Successful	%	30	5	20	20	25
Successful	%	0	10	5	45	40

Chi-square = 10.75; *df* = 4; Significance = .030
Sample size: Less Successful = 20 Successful = 20

It is particularly interesting, however, that no significant differences were observed between successful and less

successful companies with respect to the incidence of team-work and effective inter-departmental cooperation, as these are attributes which are often associated with successful companies (Peters and Waterman 1982).

The values held by top management in an organisation have also been shown to distinguish well between successful and less successful organisations (see Peters and Waterman 1985). This research is no exception and there are a number of key goals pursued by successful companies that make them stand out from their less successful counterparts. Table 7.33 presents those values which show a difference between the two groups.

Table 7.33 Shared Values

Value	Less Successful %	Successful %	Significance
To provide a good working environment	35	60	.113
To improve company image	5	25	.076
To invest for the future	0	15	.072

Sample size: Less Successful = 20 Successful = 20

The provision of a good working environment is a priority for a high percentage of the successful companies, because they realise that they need to maintain a high level of staff commitment and keep staff turnover to a minimum. One successful company had a policy whereby all the offices were completely refurbished every three years and all the

offices, in the home and overseas markets, were all fitted out exactly the same and to the same standards such that "Our workforce should feel like they are at home here".

Many of the managers in the successful companies were very concerned with the external image of their companies and were keen to promote this. One company was particularly ambitious in their stated aim "We want our company's name to be synonymous with this particular technology world-wide - just like Hoover".

7.6 Marketing Orientation of Successful and Less Successful Companies

It has been hypothesized that successful companies display a higher degree of marketing orientation than their less successful counterparts. Although it has already been shown that the vast majority of all participating companies admit to being product-led, it is interesting to explore to what extent these companies display aspects of the substance of marketing and to establish how much this contributes to company success in the machine tool industry.

7.6.1 Market Focus

Most of the companies interviewed displayed a high level of market focus by virtue of the fact that they were all able to identify key segments in their market place, although the approaches adopted to perform this vital activity did differ

(see Table 7.10). Evidence from the comments made by respondents suggests quite strongly that in the case of the less successful companies market segmentation is more by luck than judgement. A view held by many was "We don't intentionally segment the market". An analysis of the way in which market information is processed by senior managers is interesting and suggests quite clearly that successful companies are more actively involved in market research (Table 7.34). It is also interesting to note that the higher degree of informality continues into these key activities in the less successful companies.

Table 7.34 Way in which Market Information is Received by Senior Managers

How does management in your company receive market information?						
		formal reports				*informal* verbal
		1	2	3	4	5
Less Successful	%	26.3	10.5	15.8	5.3	42.1
Successful	%	50.0	25.0	15.0	10.0	0

Chi-square = 11.27; *df* = 4; Significance = .024
Sample size: Less Successful = 19 Successful = 20

In addition, the more successful companies keep themselves better informed about competitor activity in the market-place by updating their information more regularly than their less successful counterparts (see Table 7.15). A certain degree of scepticism about market research was expressed by some respondents in less successful companies. Many claimed that reliable market information was not available, which is likely to be a proxy for them not

reading it, as the trade association provide reasonable, up-to-date market data on a regular basis. Alternatively they do not believe the information as expressed by one respondent "We do get market research studies, but they do not give a true picture".

7.6.2 Customer Orientation

It has already been shown that there were no significant differences between successful and less successful companies in their approach to their key customers and that customer contact is of utmost importance to both groups. There was, however, a distinction with regard to customer relations with successful companies more likely to build long-term relationships (see Table 7.12).

Table 7.35 How Customer Service is Handled

Responsibility	Less Successful %	Successful %
No one	26.3	5.0
Dedicated service department	15.8	65.0
Sales department	21.1	15.0
Service manager	21.1	15.0
Works manager	15.8	0

Chi-square = 12.18; *df* = 4; Significance = .016
Sample size: Less Successful = 19 Successful = 20

It is to be expected that all companies give a high priority to customer satisfaction, but very few actually measure it. This study found that of the few who did 64% were successful

companies. In spite of this there was no distinction between the two samples in how customer satisfaction was measured with surveys being the most common option. Likewise, it is not unusual that all companies agreed that customer service was of the utmost importance to their companies. The Anglo-German comparison revealed a number of key differences with regard to the meaning of customer service (see Figure 6.1), but in this analysis respondents were in broad agreement that the key elements of customer service were a quick response and spares availability. However, the commitment to customer service appeared to be greater in the more successful companies with 65% of them having a dedicated service department (Table 7.35). Meanwhile, over 25% of the less successful companies admitted that no one in their organisations was responsible for customer service.

Table 7.36 Extent of Customer Involvement in the New Product Development Process

To what extent is the customer involved in the development of new products and processes?						
		not at all 1	2	3	4	very frequently 5
Less Successful	%	20.0	0	33.3	6.7	40.0
Successful	%	0	23.1	15.4	23.1	38.5

Chi-square = 8.28; *df* = 4; Significance = .082
Sample size: Less Successful = 15 Successful = 13*

* does not include German subsidiaries.

A further indication of the level of customer orientation is the extent to which customers are involved in the new product development process. As Table 7.36 shows, whilst

nearly all companies tend to involve the customers to some extent, there is a clear group within the less successful companies that do not involve the customer at all. One possible reason for this is that these companies are not active in new product development in the first place.

Table 7.37 Customer Involvement in the New Product Development Process

Involvement	Less Successful %	Successful %	Significance
At design stage	53.3	15.4	.037
Simultaneous engineering	0	15.4	.115

Sample size: Less Successful = 15 Successful = 13

It is particularly interesting, therefore, to look at the ways in which the customer is involved by the participating companies. It is striking that more of the less successful companies involve the customer at the design stage (Table 7.37). If this is the case the question must be asked 'What goes wrong?' Is it that the less successful companies are failing to meet customer needs at the design stage or are they being beaten by tough competition at the end product phase? Alternatively does this reflect the fact that the less successful companies involved the customer in the design of their current products? Products which in many cases are no longer successful simply because the technology is out-of-date. Unfortunately there is no information available to substantiate either of these points. Meanwhile, some of the successful companies have started to offer

simultaneous engineering to their customers in which the customer initiates the need for a product a then works closely with the supplier from the design stage right through to installation and after-sales service.

7.6.3 Coordinated Marketing

All companies interviewed were product-led and no significant difference was found between successful and less successful companies in the extent to which effective integration of the different functions took place. Likewise, there was no evidence of what Roberts (1963) referred to as marketing as a "unifying concept".

7.6.4 Profitability

Table 7.38 Profitability

Profit level	Less Successful %	Successful %
below 0	6.3	5.3
0 - 9%	43.8	73.7
10 - 20%	50.0	15.8
over 20%	0	5.3

Chi-square = 5.39; *df* = 3; Significance = .145
Sample size: Less Successful = 16 Successful = 19

An analysis of the profitability of the two sets of companies reveals that, although nearly all companies divulging this information were profitable, the less successful manufacturers appear to be showing greater

returns (Table 7.38). However, the importance of profit maximisation as a key company goal did not distinguish between the companies.

Given that so many of the less successful companies had survival as a key company goal it is reasonable to assume that in order to survive certain levels of profitability are essential. The main reason why more of the successful companies show lower levels of profitability is because they are prepared to forgo short-term gains in order to build a long-term business. This became particularly apparent, not so much in the statistical data as in the valuable comments received from so many respondents. So many of them stated quite categorically "We are not driven by short-term needs" or "We are building a long-term business, therefore, investment is very important". Such comments were not expressed by any of the managers in the less successful companies, instead they tried to justify their interest in short-term profits by blaming the banks "As a private company it is very important to achieve a good current profit performance as it is the only thing banks will look at", or in the case of subsidiaries (not the German subsidiaries) they blame their parent companies by saying that "Short-term profits are important in our role as a subsidiary".

7.6.5 Competitor Orientation

All respondents appear to have a reasonable knowledge of the competitive activity in their major markets. An element of complacency was, however, detected in the more successful companies with the surprising result that very few of them regarded the Japanese as a competitive threat (see Table 7.13). Apart from this, the successful manufacturers were largely realistic about their competitive performance which was not always the case for their less successful counterparts many of whom had a surprisingly high opinion of their own product performance (see Table 7.14). In addition they were collecting competitor intelligence less frequently than their successful rivals which suggests that in many instances their true understanding of the competition is limited.

7.6.6 Innovation

A high proportion of companies (excluding German subsidiaries) claimed to have a strong product design capability (less successful 53.3%; successful 46.2%). What was surprising though was that over 65% of the less successful manufacturers said that they possessed a flexible and responsive R & D facility (see Table 7.17). It is not clear, however, that if this is the case why they are not more successful, particularly when it is considered that, on average, they are spending more, as a percentage of turnover, on R & D than their more successful rivals.

7.6.7 Long-term Business Perspective and Marketing as a Business Philosophy

It is clear from the preceding analyses that none of the companies interviewed embrace marketing as a business philosophy, although there is evidence to suggest that certain elements of a marketing orientation are present in both sets of organisations. There is, however, clear evidence of a short-term business perspective on the part of the less successful companies (see Table 7.6) with top priority given to goals such as 'survival', 'prevent decline of market share' and 'improving productivity'. Meanwhile successful companies were less likely to pursue these short-term objectives concentrating more on goals based on product and market expansion and increasing market share. However, unlike other studies (eg. Baker et al 1988, Saunders and Wong 1985), no significant differences were observed with regard to these goals.

7.7 Examination of the Propositions Relating to Successful and Less Successful Companies

HA1 Proposition HA1 states that successful companies formulate both long and short-term objectives emphasising market share and growth (Saunders and Wong 1985, Baker et al 1988). The findings presented earlier show that less successful companies concentrate predominantly on short-term goals such as survival and preventing decline of market share (see Table 7.6), although there was no evidence to

suggest that they attached a higher level of importance to short-term profit maximisation than their more successful rivals. Although successful companies were found to place a higher priority on longer-term goals such as product and market expansion and increasing market share no significant difference was observed when they were compared with the less successful sample. However, market share was found to be important to successful companies as significantly more of them used this as a means of measuring their success (see Table 7.7). Successful companies do formulate both long- and short-term objectives with the result that this proposition is supported, but it is important to note that less successful companies were found to develop similar goals.

HA2 This proposition suggests that successful companies are more aggressive in their pursuit of strategies which are based on product differentiation (Baker et al 1988, Hooley and Jobber 1986). It is certainly the case that the less successful companies adopted a more defensive, reactive approach to their markets, although they, like their successful competitors, were found to be following product-led strategies. Interestingly more of the successful manufacturers were found to adopt a product-orientation (see Table 7.9), although when the differential advantages of the companies are taken into account nearly half of the successful participants perceived their strengths to be less product-related areas and more in customer-based attributes such as customer service and problem solving capabilities (see Table 7.16). This proposition is, therefore, partially supported.

HA3 It was hypothesized that successful manufacturers segment their markets and identify key target markets (Hooley and Jobber 1986, Steiner and Solem 1988, Hansen et al 1990). This study found that, although more successful companies did have clearly defined target market segments than their less successful counterparts the difference was not significant. However, differences were found in the methods used to segment the markets with more successful companies using geographic variables as a means of segmentation (see Table 7.10) suggesting a higher degree of internationalisation. Successful manufacturers did though appear to be better at identifying customer needs for superior products and as such targeted these needs better than their less successful counterparts (see Table 7.11). This proposition is, therefore, only partially supported.

HA4 This proposition contends that successful companies have a better understanding of the competitive activity in their markets than less successful manufacturers (Doyle et al 1986). Successful companies did appear to have a good knowledge of the market and in particular a realistic assessment of their own performance within those markets (see Table 7.14). In addition, most of them were updating their competitor intelligence more frequently than their less successful counterparts. However, they did appear to be somewhat complacent in their view of their key competitors with only 5% of them perceiving Japanese manufacturers as a major threat (see Table 7.13). This suggests that, whilst

they have a good understanding of current market conditions their knowledge of potential new threats is potentially less well-informed. Nevertheless the proposition is fully supported.

HA5 states that successful companies do not compete on price but on the basis of product differentiation (Doyle et al 1986, Hall 1980, Simon 1990). This proposition is supported as Table 7.8 shows that price is not important to over 60% of the successful manufacturers. The comments from all of these respondents suggests strongly that successful organisations would not be prepared to compromise on quality in order to obtain a low price. This proposition is further supported by the overwhelming number of successful companies that are product-oriented. However, in spite of this emphasis on product differentiation as a means of achieving success there was no evidence that successful companies were commanding significantly higher prices for their products.

HA6 Organisational flexibility coupled with the ability to adapt quickly to changes in the marketplace are said to characterise successful companies (Goldsmith and Clutterbuck 1985, Clifford and Cavanagh 1985). The adoption of a matrix organisation structure by over 25% of the successful manufacturers (see Table 7.22) would seem to support this as would the finding relating to the possession of a flexible and responsive R & D capability (see Table 7.17), although company size could be a determining factor. However, no significant differences were found between the two samples

with regard to the use of team work and effective inter-departmental co-operation.

The findings on competitor intelligence gathering in Table 7.15 and market information in Table 7.34 do though suggest that successful companies have greater access to market data thus enabling them to respond more quickly to changes in the market with the result that this proposition is also supported.

HA7 contends that successful companies are better at planning than their less successful counterparts (Hooley and Lynch 1985, Baker et al 1988). The findings of this research fully support this proposition with 75% of successful companies developing medium to short-term plans and 55% of them formulating long-term plans (see Table 7.25).

HA8 It was hypothesized that successful companies operate informal but regular communications systems, whilst maintaining tight control of their business (Goldsmith and Clutterbuck 1985, Doyle et al 1986). This research revealed that high levels of informality were present in less successful companies both in terms of the approach to communications and the management style. Successful manufacturers, however, were found to favour a more balanced approach drawing a fine line between the desire for informal communications channels and the need for direction from the top. Top level meetings were found to take place on a regular basis. Successful companies were found to place a

high emphasis on efficiency and control (see Table 7.24), whilst maintaining fairly tight supervisory control (see Table 7.26). This proposition is, therefore, supported.

H1 One central proposition of this research is that successful companies display a high level of marketing orientation (Narver and Slater 1990, Webster 1988, Hansen et al 1990). At first glance this would appear not to be the case, however, a closer inspection of the elements of a marketing orientation reveal that successful companies do possess certain elements of a marketing orientation.

Successful companies appear to be better informed in most cases of what is happening in their major markets (see Tables 7.11, 7.14, 7,15 and 7.34). They are more interested in building long-term customer relationships (see Table 7.12) and are more likely to measure customer satisfaction. Their commitment to customer service is high with 65% of them having a dedicated service department (see Table 7.35). Customer involvement in the new product development process is also encouraged.

However, no differences were found between successful and less successful companies with regard to the effective integration of the different functions within the organisation or the importance attached to achieving a good short-term profit performance. Actual profitability levels along with the goals pursued by the two sets of companies (see Tables 7.38 and 7.6) suggest though that successful

companies are not driven by short-term considerations but are more concerned with building a long-term business. Successful manufacturers were found to be reasonably competitor-oriented, however it is unusual that they do not seem to perceive a real Japanese threat in their major markets. Successful companies were fairly innovative and possessed a flexible and responsive R & D capability (see Table 7.17), but were found to be investing less, as a percentage of turnover, in R & D than their less successful counterparts. In addition many of these less successful companies were selling products developed more recently than their successful competitors.

It can, therefore, be concluded that, whilst none of the companies interviewed in the course of this research could be classified as being marketing-oriented, many of them, both successful and less successful display certain elements of a marketing orientation such that the proposition cannot be fully supported.

8.0 CLUSTER ANALYSIS

8.1 Introduction

The analyses in Chapters Six and Seven reveal that a number of key differences exist between British and German and between successful and less successful companies. Since there are many more successful German manufacturers it is interesting to consider whether these differences are due to national origin. It is particularly valuable to examine the subsidiaries in order to determine whether the successful subsidiaries are more like their successful German parents or whether they display unique characteristics. This issue is complex, largely because there is no single strategy which determines success. Cluster analysis, using the variables relating to company goals and strategies, is employed to identify strategic groupings within the data set and to profile those groups. This enables the characteristics of similar companies to be determined.

8.2 Identification of Strategic Groups

The identification of strategic groups within an industry is a concept put forward by Miles and Snow (1978). In observing organisational behaviour they noted that organisations within one industry develop strategies that are recognisable to industry observers. They take the view that a given marketing strategy is best served by a particular type of organisation structure, technology and management process.

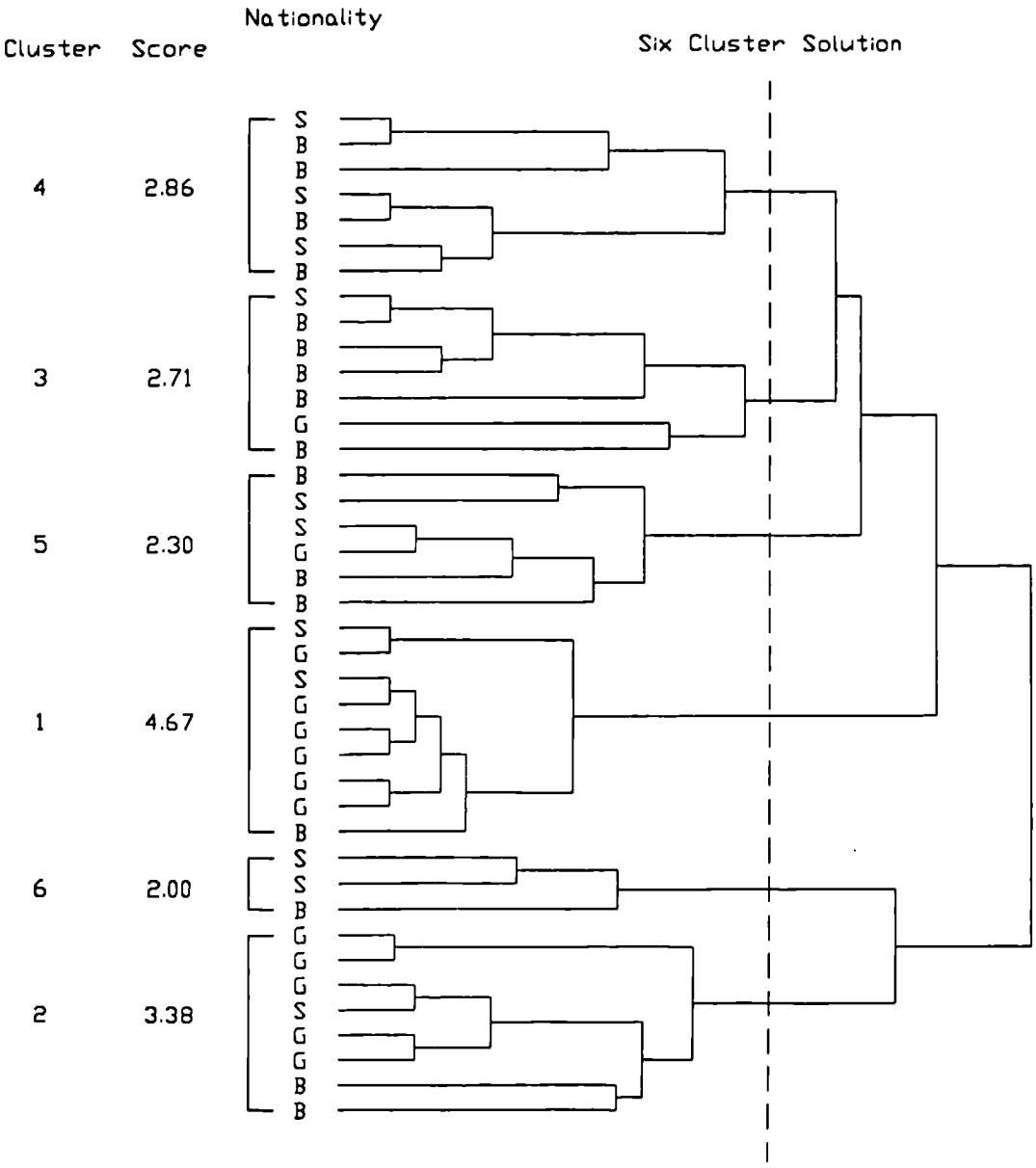
By means of case studies in four industries Miles and Snow (1978) identified four main strategic groups - defenders, prospectors, analyzers and reactors. Although the researchers argue that their concept "specifies relationships among strategy, structure and process to the point where entire organisations can be portrayed as integrated wholes in dynamic interaction with their environment" (p. 30) it does not take into account performance within the industry which is likely to impact a company's chosen strategy.

Porter (1980), meanwhile, also used case observations in a range of industries to derive three generic strategies for business success - cost leadership, differentiation and focus. Hooley et al (1992), however, note that in spite of much recent research into strategic types (eg. Cool and Schendel 1987, McGee and Thomas 1986, Douglas and Rhee 1989) "there remains a lack of empirical evidence which examines a wide range of marketing variables across a diverse set of industries and environments" (p. 75-76). In an empirical study of 616 British companies Hooley et al (1992) identified five strategy types - aggressors, premium position segmenters, stuck-in-the-middlers, high value segmenters and defenders. Although these generic strategies bear some resemblance to those identified by Miles and Snow (1978) and Porter (1980) the authors argue that their research "has produced a richer tapestry of marketing strategies employed by businesses than hitherto and has

provided some evidence of their relative performance" (p. 86).

In this research strategic groups were identified by considering company goals and strategies following the methodology outlined in Chapter Five and where appropriate the characteristics of these clusters will be compared with the strategy types identified by Miles and Snow (1978), Porter (1980) and Hooley et al (1992). As can be seen from the dendrogram in Figure 8.1 a six cluster solution appears to be the most appropriate for further analysis. In interpreting the strategic groupings the mean scores for each variable were considered across the clusters. In order to assess whether the differences between groups were significant an analysis of variance was undertaken. The subsequent discussion only considers those variables which show a significant difference between the clusters. Full details of the means and significance levels for each variable can be found in Appendix H. The cluster analysis was validated by using both the single linkage and the average linkage clustering techniques as detailed in Chapter Five. The results of this validation procedure are presented in Appendix J.

Figure 8.1 Dendrogram Showing Six Cluster Solution



Score: 1 = very unsuccessful; 5 = very successful

Nationality: B = British; G = German; S = Subsidiary

8.3 Description of the Clusters Based on Goals and Strategies

Cluster 1

This cluster comprises six German companies, two subsidiaries and one British company, and in performance terms is the most successful group. These companies stand out from the rest in a number of respects. They take a long-term approach to their business and have clear market share objectives. They are pro-active as evidenced in their keen desire to expand into new markets. They are not driven by short-term financial gains, although they do understand the need to balance both short and long-term performance. Further, they recognise the importance of having a cost effective production facility and, therefore, attach a reasonable level of importance to achieving productivity improvements.

These highly successful companies achieve their objectives by concentrating on product quality and reliability as a major source of competitive advantage. It is not surprising, therefore, that these companies rate the development of new products and processes higher than any other cluster.

Cluster 2

Cluster 2 consists of five German, one subsidiary and two British companies. This is the only other group with an above average performance, although they are noticeably less successful than Cluster 1. This group of companies also

takes a reasonably long-term perspective to their business, but they are more profit conscious than Cluster 1. As a result they are more inward-looking and less market-focussed, placing the highest priority on improving productivity as the key company goal, although this is not necessarily being achieved to the detriment of long-term performance. Further evidence of their lack of market focus is seen in the low priority given to market share objectives and also the lower level of importance attached to expanding into new markets. These companies are largely product-led and seek to achieve their objectives by producing quality products, although they are less successful in doing so than the previous cluster.

Cluster 3

This cluster is made up of one German, one subsidiary and five British manufacturers. Unlike the previous two groups their performance is below average, although they possess some of the same characteristics as the others. These manufacturers take a more defensive approach to their business, which can be seen in their concern to prevent a decline in their market share. In addition, survival as a company goal is of greater importance to them than the previous two clusters, although there is evidence that they are trying to balance short-term gains with long-term performance. Although short-term profits are of above average importance to this cluster they are also interested in expanding into new markets. However, these companies are more inward looking than either Cluster 1 or Cluster 2 with

improving productivity receiving the highest level of importance as a company goal of all the clusters. These companies, too are concerned with producing quality products and, although less active than Cluster 1, place above average importance on developing new products. They do though hold a high opinion of their products which is probably not wholly justified.

Cluster 4

Cluster 4 comprises three Subsidiaries and four British companies. Their performance is average but lower than that of Cluster 3 and falls well short of that of Clusters 1 and 2. These companies have achieved their average level of performance by adopting a short-term perspective to their business. With the exception of Cluster 6 this group attaches the highest priority of any cluster to short-term profit maximisation. It is not surprising, therefore, that survival is also a high priority to these companies. However, in spite of this they do attach above average importance to market share issues both in terms of increasing and preventing decline of their market share. Only Cluster 1 ranks expansion into new markets as more important than this group. As with Cluster 1 these companies are pursuing strategies based on product quality and reliability which is also evidenced in the priority given to developing new products. These companies appear in certain respects to have the right approach for developing a long-term business but lack the confidence and aggression of Cluster 1.

Cluster 5

This cluster is made up of one German, two subsidiaries and three British companies. Their performance is poor and their approach to their markets is defensive. Of the six clusters this group rates survival as their single most important goal. The fact that they rank 'increase market share' and 'prevent decline of market share' equally highly suggests that they are balancing precariously on a knife-edge. They want to balance short- and long-term performance, but seem to be genuinely unconcerned about short-term profit maximisation, possibly because they realise that, with their current product portfolio, they are unlikely to make big profits. This cluster attaches the least importance of all the groups to product quality and reliability as a source of competitive advantage and only places average importance on developing new products and processes, whilst at the same time holding, what is probably a mistaken belief that their products are not in direct competition with others. These companies lack any clear goals and strategies and because of this lack any clear direction to their business.

Cluster 6

Cluster 6 comprises two subsidiaries and one British company. and is the least successful of the six groups. They adopt the most short-term perspective of all the clusters with profit maximisation their overriding concern. They are not interested in expanding their business either through new markets or new products and market share is only of

limited importance. It is not surprising, therefore, that survival should be a top priority to them although not quite as important as it was to Cluster 5. Although new product development appears not to be important to them this group claims to concentrate on product quality and reliability as a source of competitive advantage. These companies appear to be in trouble and seem to be fighting to keep their heads above water. Therefore, they have little time, money or inclination to expand their businesses.

As can be seen from the above descriptions of the six clusters there are clear strategic groupings. It is particularly interesting to note that the most successful group comprises predominantly German companies. Surprisingly though of the two subsidiaries in this cluster neither of them are the daughter companies of the successful German manufacturers. In fact, in only two instances are the parent and subsidiary in the same cluster. It is also interesting that Cluster 1, in performance terms, outstrips all the other groups by quite a long way, a sign perhaps that the German companies are the ones to emulate in order to be successful in the machine tool industry. However, it is encouraging that there is one British company in this top performing cluster. The differences between the other clusters are less great, although a full profile of each group does highlight a number of significant differences with respect to other variables.

8.4 Profiling the Clusters

One of the key elements of the validation process for cluster analysis is to assess whether different clusters display differences on variables not used in the analysis (Everitt 1980). As the subsequent discussion demonstrates there were a number of significant differences between the six clusters on a wide range of variables, which suggests that the approach adopted is acceptable. For full details of the variables used in the profiling stage of this cluster analysis see Appendix I. As with the variables relating to goals and strategies only those variables which show a significant difference were considered.

Cluster 1

Cluster 1 is the top performing group in the whole sample, although on the basis of the company's own self-assessment they come second. These companies operate on an international scale with high levels of exports. In Europe they operate largely through subsidiaries, but this is likely to be a reflection of the fact that the largest companies in the sample are to be found in this cluster. Their high degree of internationalisation is further evidenced in their choice of geographic variables to segment their major markets.

This cluster is the most market-focussed of the six, although the companies are still predominantly product-led. They use market share to measure their own performance and

are more likely to set market share objectives than any other cluster. They place a high priority on product quality and reliability as a means of creating a competitive advantage and this is reflected in the premium prices commanded by their products.

Customer contact is of the utmost importance to companies in Cluster 1 as they strive to keep their customers satisfied. They, more than any other group, conduct regular surveys assessing levels of customer satisfaction reflecting the priority attached, by these highly successful manufacturers, to this important issue. The commitment of Cluster 1 to their customers is further evidenced in the importance attached to customer service with more of these manufacturers having their own service department than those in any other cluster. However, company size is also likely to be a determining factor.

Meanwhile, these manufacturers are also realistic about their own capabilities when comparing themselves with their competitors because, unlike those in other clusters, they believes that their product design and performance are on a par with or only marginally better than those of their rivals. Cluster 1 holds the view that their key competitors are German manufacturers which is perhaps not surprising given that the majority of companies in this cluster are German. It is interesting though that none of them consider the Japanese machine tool manufacturers to be a major threat.

Given that this group has achieved its success by satisfying their customers' needs for quality, reliable products it is perhaps not surprising that they should possess a strong advanced research capability. Although they are strong on product design, it would appear that Clusters 3 and 4 are better. A commitment to new product development is further evidenced in their expenditure on R & D which at, on average, 5.5% of turnover is much higher than any other cluster. This translates into up-to-date technology because unlike any other group Cluster 1 companies have no products in their portfolios which are over twenty years old. This cluster also experiments with and tests new products more than their competitors which suggests that they are more innovative than the others. In addition, the customer is frequently involved in this process, but does not seem to dominate it.

In organisational terms, companies in Cluster 1 are more likely to adopt a matrix structure and at the same time most of them have a marketing department. This could, however, be a function of company size, although the marketing departments are responsible not only for advertising and promotional activities but are also involved in marketing planning, market research and monitoring the competition. They appear to take marketing seriously as witnessed in the level of investment in such activities. Although they spend, on average, 3.3% of their turnover on promotional activities Clusters 3 and 5 outspend them.

Cluster 1 display a high level of inter-departmental integration in order to ensure success for their companies. Only Cluster 2 claims to be better in this respect. As a result a fine balance is struck in these companies between the need for formal communications channels and the need for informality. Although no significant differences were found between the groups with regard to their planning systems companies in Cluster 1 held top executive meetings on a very regular basis and, more than any other group, were seen to have tighter control procedures aimed towards corrective action. No significant differences were found between the strategic groupings with regard to management training, although it is interesting to observe that managers in Cluster 1 spent, on average, eight days per annum on training courses. This demonstrates a commitment to training by these companies, although Cluster 2 managers appeared to receive more management training.

Unlike the excellent companies identified by Peters and Waterman (1982) these top-performing machine tool manufacturers did not appear to have any clear set of guiding principles or shared values. This cluster shares some similarities with the prospectors identified by Miles and Snow (1978).

Cluster 2

Cluster 2 is the next best performing group, although the difference in performance between them and Cluster 1 is

quite large. Looking at the self-assessment of success, companies in this group rate themselves as the most successful of all the clusters. However, when asked to compare their performance with the average for the machine tool industry their score was identical to that recorded in the peer group assessment.

In terms of size these companies are small and medium-sized and are less active in international markets than Cluster 1. This group is not driven by market share, adopting instead more of a sales orientation. Segmentation, where practised, tends to be more on the basis of industry. Although they place slightly less emphasis on product quality and reliability as a source of competitive advantage than the other clusters this group claims to command higher prices for their products even when compared with Cluster 1.

Of all the groups, customer contact is of least importance to this cluster. They do not measure customer satisfaction directly, although many of them do say that "a repeat order is the sign of a happy customer". Customer service is important to these manufacturers and many of them do have their own service department, although not as many as in Cluster 1.

As was the case with Cluster 1, this group is also realistic about its product offering recognising that there is little to distinguish their product design and performance from those of their competitors. They too see German

manufacturers as key rivals and equally of concern they do not seem to perceive a threat from Japanese manufacturers. It is rather strange, given that German manufacturers typically pursue strategies based on product quality, that so many of the Cluster 2 companies should be worried that their competitors are pursuing strategies based on low price. It could be, though, that their quality is not quite up to that of the more successful companies in Cluster 1. In addition, they do not update their competitor information as often as Cluster 1.

Cluster 2 is poor at R & D. They do not appear to possess a strong advanced research capability nor do they seem to be particularly strong on product design. The lower level of investment in R & D, only 2.6% of turnover, suggests that they are less committed to developing new products than Cluster 1 with the result that they are failing to invest in new products for the future. Further evidence of a lower level of commitment to new product development is obtained when it is considered that these companies experiment with and test new products significantly less than those in Cluster 1 and a lack of customer orientation emerges when it is observed that the customer is rarely involved in this process.

In organisational terms companies in this group adopt traditional functional structures. Very few of them have marketing departments and where they do they are basically a marketing services function with some responsibility for

monitoring the competition. Expenditure on advertising and promotion is, on average, 2.8% of turnover and is below that not only of Cluster 1 but also Clusters 3 and 5.

The companies in this group, more so than those in the first, believe that their departments all co-operate effectively to ensure company success. A tendency towards informality in communications is found, although top executive meetings are reasonably regular. Control procedures are seen to be stringent, again aimed towards corrective action. Management training is seen to be important to these companies with managers spending an average of nine days a year on training courses, more than any other cluster. Companies in this cluster do not appear to match particularly well with any of the strategic groups identified by Miles and Snow (1978).

Cluster 3

Cluster 3, according to the peer group evaluation, are performing below average. These companies, however, have a very high opinion of themselves based on their own assessment of performance when they compared themselves with the average for the machine tool industry. In size terms most of these manufacturers are medium-sized and have a fairly high level of overseas activity, although they are less international than those in Cluster 1.

The companies in Cluster 3 are not market-focussed and do not tend to use market share as a measure of their own

performance. Product quality and reliability are not seen to be as important as they are to Cluster 1 and this is reflected in the average prices charged for their machine tools. Customer contact is important to these companies, although not as important as to those in Cluster 1. Some of them do measure customer satisfaction through surveys, but again they are not as good at this as Cluster 1. Very few companies in Cluster 3 give customer service the highest priority further reflected in the lower numbers having a dedicated service department, in spite of all being medium-sized organisations.

Cluster 3 companies also hold a high opinion of their products apparently believing that, in terms of both design and performance, their products are superior to those of their key competitors. This is in keeping with their view that they possess a strong product design capability, although they do not have a particularly good advanced research capability. Insufficient information was available on the levels of investment expenditure in R & D, however, an examination of the number of companies selling products developed more than twenty years ago reveals that Cluster 3 manufacturers are doing this more than any other group. This suggests, therefore, that investment in new product development is low which in turn questions the claims by these companies that their products are superior to those of their competitors. They do, however, have a realistic view of the key competitors in the market with more of them regarding Japanese manufacturers as a major threat.

These companies are organised along functional lines with slightly more of them having a marketing department than those in Cluster 2. Although, like the previous group, the prime responsibility is for marketing services such as advertising and promotional activities. These companies, however, outspend those in all other clusters by allocating, on average, 5.4% of their turnover to promotional activities. Cluster 3 is less effective in co-ordinating departments to ensure company success and the over-riding management style is one of informality which is also carried through into control procedures. However, an element of formality is in evidence in the way in which market data is conveyed to senior managers which suggests that some market analysis does take place. Management training appears to be less important to Cluster 3 as managers were only spending on average three and a half days a year on training courses. This cluster appears to show some similarity with the strategic group called defenders identified by Miles and Snow (1978).

Cluster 4

Cluster 4 is, in performance, terms, the third most successful group, although its success rating is below average. Like Cluster 3 these companies also have a higher opinion of their own success and performance in the industry than their peers. This group is made up of a mix of small and medium-sized companies and their level of export

activity is the same as that of those in Cluster 2 which means that they are not overly active in overseas markets.

These companies are very internally focussed placing a high priority on product quality and reliability as a source of competitive advantage. They do not really use market share to assess their own performance and are not particularly effective in segmenting their key markets. In spite of claims that they manufacture good quality products they do not appear to be commanding premium prices. Customer contact is important to Cluster 4, although only one company actually measures customer satisfaction through surveys. The others take the same view as those in Cluster 2 that a repeat order is the sign of a satisfied customer. Fewer companies in this group have their own service department than Clusters 1 and 2 which is largely a function of their smaller size.

Although mainly British companies, many in this cluster see German manufacturers as key competitors, although one or two do recognise the Japanese threat. Cluster 4 manufacturers have a high opinion of their product design when compared with their competitors which possibly explains their claimed strength in product design and the possession of a strong advanced research capability. It would, however, appear that there has been limited investment in new product development as companies in this group are trying to sell products developed more than twenty years ago. However, there is much contradictory evidence as Cluster 4 claims to experiment

with and test new products more than other groups with the exception of Cluster 1 and companies in this cluster say that the customer is frequently involved in this process. There are two possible explanations; firstly they do test new product ideas regularly but then do not launch the products, alternatively this was the process undertaken when they have developed new products in the past.

Cluster 4 companies are organised predominantly along functional lines, although there is evidence of some adopting a matrix structure. Some companies have marketing departments, but as is the case with those in Clusters 2 and 3 the key activities performed are advertising and promotion. Cluster 4, though, is less committed to promotional activities, spending, on average, only 1.5% of turnover on marketing activities which, along with Cluster 6, is the lowest of all the groups. Companies in Cluster 4 appear to be less effective in integrating their functional departments than previous clusters and have a tendency towards an informal management style. In spite of this, top executive meetings appear to be frequent and market data is presented to senior managers in formal reports combined with verbal feedback which suggests a reasonable awareness of the market. Control procedures are slightly more relaxed than in Clusters 1 and 2 and management training in significantly less important with managers spending on average only three days per annum on training courses. This group seems to show some resemblance to the analyzers observed by Miles and Snow (1978).

Cluster 5

Companies in Cluster 5 are regarded by their peers as being unsuccessful, although they considered themselves to be above average performers. They do, however, see themselves as being less successful than the previous four clusters. All but one are medium-sized organisations and have a reasonably international outlook although export activity is below that of Clusters 1 and 3.

Cluster 5 displays a certain level of market-focus with many of the manufacturers using market share to measure their performa performance. One of these companies claims t market share objectives. However, they are not particularly good at segmenting their markets. Product quality and reliability as a means of creating a competitive advantage is of least importance to this group of all the clusters. Customer contact was seen as being vital, although only one company actually measured customer satisfaction. Customer service was handled in some instances by a dedicated department.

This cluster does not hold quite such an inflated view of its product design as do Clusters 3 and 4, although they say that they are reasonably strong on product design, but not as strong as the previous clusters. They were clear, however, that they do not possess an advanced research capability.

A third of the companies in Cluster 5 see Japanese manufacturers as key rivals with half of them believing that their major competitors are pursuing strategies based on low price. This is a very real fear as product quality in Cluster 5 companies would appear to be lower than that of other clusters. In spite of a concern over price they claim to be commanding higher prices than their competitors which does not appear to be matched with higher quality. The overall commitment by these companies to new product development is low compared to those in previous clusters. They seem to experiment with and test new products significantly less and the customer is only occasionally involved. Insufficient data on R & D expenditure allows no direct comparison with other clusters to be made, although it should be noted that these companies have probably been investing, at some stage, in new products as all products in the current portfolio were developed in the last twenty years.

Very traditional functional structures are evident in Cluster 5 manufacturers, and not one company has a marketing department. However, the average spend on advertising and promotion at 3.5% of turnover is rather high. Of all the clusters profiled so far this group appears to be the least effective in integrating departments to ensure company success. Their style is largely formal with market data formally collated, all be it infrequently and top executive meetings are rare. In spite of high levels of organisational formality tight control procedures do not seem to be

important. In addition management training received a fairly low priority with managers only receiving three and a half days training on average a year. This cluster does not appear to conform to any of the groups identified by Miles and Snow (1978).

Cluster 6

Cluster 6 comprises a unique set of three less successful companies. Not only are they considered by their peers to be unsuccessful, but when comparing themselves with the machine tool industry average they rate themselves as poor performers. In fact two of the companies are showing negative profit margins. However, when taking into account their own measure of success, survival, they rate themselves as above average. These three companies are all small with low levels of overseas business principally because two of them are subsidiaries. They are run by Managing Directors with fairly strong personalities who keep the decision-making to themselves. They are not market-focussed and do not appear to segment their markets at all.

Cluster 6 claims to have a competitive advantage in terms of its product quality and reliability. Whilst this may be true for the subsidiaries, because they are supplied with products from their German parents, it does not appear to be the case for the British company as it is weak in product design and does not have an advanced research capability. This could of course be a function of its small size. All three companies believe that their product design and

performance is superior to those of their competitors. In fact their opinion of their product design is the highest of all the clusters. In keeping with this view they are commanding premium prices for their products whilst worrying that their competitors are following strategies based on low price.

Customer contact is important to those in Cluster 6, yet they do not measure customer satisfaction, nor do they have a dedicated service function (although size plays a role here too). Because of the subsidiary status of two of the companies R & D has a low priority as does product testing and customer involvement in new product development.

These companies do not have a marketing department which is again a reflection of their small size and their expenditure on advertising and promotion at 1.5% of turnover. This along with Cluster 4, is the lowest spend of all the groups on advertising and promotional activities. Effective inter-departmental integration is not as good as in many of the more successful clusters and management style is very informal with few executive meetings reflecting the hold that the Managing Directors have over the decision-making process in these companies. The collation of market data is infrequent with most of the information on markets, customers and competitors in the heads of the Managing Directors. As would be expected control procedures are, therefore, very informal and management training non-existent. Of all the clusters this one shows the greatest

resemblance to the Reactors observed by Miles and Snow (1978).

8.5 Characteristics of Successful Companies in the Machine Tool Industry

In contrasting the successful and less successful clusters four central differences emerge:

1. Commitment to Building a Long-term Business

Clusters 1 and 2, the most successful groups, are much less concerned with short-term matters such as survival, profit maximisation and preventing a decline in their market share. Instead they seek, in particular Cluster 1, to concentrate on building a long-term business based on market share whilst at the same time finding a balance with their short-term financial performance. In addition market expansion, particularly into new overseas markets is a high priority to the successful groups. Clusters 4 and 5 also attach importance to market share objectives, but within the short-term confines of increasing market share in order to survive. Meanwhile the less successful clusters adopt a more defensive approach to their business with an overriding concern being to maximise short-term profits so as to survive.

2. Commitment to Research and Development

The most successful cluster displays a strong commitment to R & D, investing much more than any other group in new

products. Cluster 2 appears to have a much lower level of R & D activity which may well explain why these companies have not been more successful. Clusters 3 and 4 claim to attach importance to R & D but do not appear to have been successful as a result, either because they are not developing the products required by the market or because they recognise the importance of developing new products but are not, because of their primarily short-term outlook, able to make the necessary investment.

3. Commitment to the Customer

Customer contact was of the utmost importance to successful companies not only in terms of sales but also, in the case of Cluster 1, in involving customers in the new product development process so that quality products could be developed that matched customer needs. Successful companies were also found to conduct regular surveys to measure the level of customer satisfaction.

4. Organisational Style

The successful clusters appear to embrace a unique blend of formal and informal communications styles whilst ensuring that there is effective inter-departmental cooperation. Control procedures, however, appear to be more formal but with an emphasis on the need for corrective action. The formality in successful clusters translates through into their market research. Whilst companies in all groups appear to have a reasonable understanding of the machine tool

market the less successful clusters obtain market intelligence in a more informal ad hoc manner.

Comparing the six cluster identified in this research with those discovered by Doyle et al (1986) in their study of British and Japanese organisations it would appear that there are some similarities. In particular, the most successful clusters in the two studies are more aggressive in their pursuit of long-term market-focussed goals and strategies. And in both cases the less successful clusters place a higher priority on short-term defensive strategies such as profit maximisation and survival. An interesting difference between the two studies is in the performance ratings of the identified clusters. In the Doyle et al (1986) study only two of the six clusters were average or below average performers compared with four in this study. This could of course be a function of the bias towards larger machine tool manufacturers in the German sample.

Comparing subsidiaries with their parents it is interesting to note that in only two cases do the two appear in the same cluster. In every other case the subsidiary is found in a lower performing cluster than their parent. This could be the result of the different priorities held by subsidiaries or it could also be a reflection of the relatively small size of the British market for machine tools. The latter theory has appeal because in most instances the subsidiaries are in the same cluster as their major British competitors.

Finally the clusters show that, although the top performing group consists mainly of German companies it is possible for British machine tool manufacturers to pursue similar successful strategies. The analysis also suggests that the poorer-performing clusters are emulating the successful clusters in some ways. It can, therefore, be concluded that the divide between being successful and not successful is not great and that there is no single recipe for either success or failure. Findings from earlier empirical studies seem to suggest that the characteristics associated with successful companies in this research are not unique to the machine tool industry, although product-related issues such as quality, reliability and continuous product development may be more paramount for machine tool manufacturers.

9.0 CONCLUSIONS

9.1 Introduction

This study compares and contrasts the approach to marketing of British and German companies in the machine tool industry. In addition it seeks to ascertain what characteristics distinguish successful companies from their less successful counterparts in this industry. This chapter begins by highlighting the methodological weaknesses of the present study. The key findings are then summarised and both the theoretical and practical implications of the research are addressed. It considers the contribution made by this study to the understanding of marketing issues in Britain and Germany and finally proposes areas for future research.

9.2 Methodological Limitations

The aim of this research was to compare the marketing strategies and organisational characteristics of a stratified random sample of British and German machine tool manufacturers. Whilst this objective was largely achieved for the British sample, difficulties were experienced in obtaining interviews with German companies. The British subsidiaries of German manufacturers were contacted as it was anticipated that they would provide a useful proxy for the marketing strategies of their parent organisations. A discriminant analysis, however, showed that this was not the case and the researcher was left with three distinct samples

to analyse. The methodology for this research, therefore, has a number of inherent weaknesses.

Luck and Rubin (1987) acknowledge that it is almost impossible for a sample to match the population exactly such that there is likely to be a degree of sampling error in all samples. They argue that "the best validation of a sample is generally considered to be simply the knowledge that a good probability design has been accurately implemented" (p. 255). Unfortunately this is not the case in this study. Through the use of a convenience sampling approach the German sample is highly skewed towards larger companies. The findings of this research cannot, therefore, be considered to be representative of the machine tool industry as a whole and the results should be treated with caution.

In addition, the size of companies within the three samples ranges from 10 employees to over 1200, such that one might expect to find significant differences in their approach to marketing simply on the basis of size. Further the sample sizes in the three groups are small, such that not all the conditions for the chi-square test were met. Categorical data were collapsed in order to overcome these difficulties, but such an approach can result in the loss of useful information (Everitt 1977). As well as the weaknesses in sampling there is also the possibility of measurement

problems. Luck and Rubin (1987) have identified two sources of measurement problems:

i) respondent-associated errors

11) instrument-associated errors

As all of the questionnaires were pre-tested and the German questionnaire was translated and re-translated to check for error and ambiguity instrument-associated errors have been limited. There are, however, three possible sources of respondent-associated error:

a) Respondents may not understand the question. Given the positions of the respondents within their companies, the careful testing of the questionnaires and the interview technique adopted this is unlikely to have been a problem in this research.

b) Respondents may not have sufficient information to answer the questions. This may have happened in some cases because not all of the respondents were Managing Directors, so may not have had full access to, for example, financial data.

c) Respondents may be reluctant to divulge some information. This certainly appears to have been the case in the first attempt to obtain interviews with a random sample of German companies. The question of confidentiality is also an issue which was of concern to many respondents in this study. Confidentiality was guaranteed but some

respondents were, nevertheless, reluctant to answer some questions.

It should also be noted that some respondents, particularly in British companies, may have been keen to give a better impression of their companies such that some of their answers may give an inflated view of their performance.

The validity of the responses were tested by asking a number of questions in more than one way. The use of a semi-structured questionnaire in an interview situation also allowed the researcher to check for any possible misinterpretations thus further reducing respondent-associated error.

9.3 Empirical Findings

Following a thorough review of the literature a number of propositions were developed with respect to the differences in marketing strategy in British and German as well as in successful and less successful companies. The propositions were based on self-reporting measurements and tne chi-square test, discriminant and cluster analysis statistical techniques were used to analyse the data.

9.3.1 Propositions Relating to Anglo-German Differences

A total of eight propositions were developed with regard to the differences between British and German companies in

their marketing strategies and organisational characteristics.

HS1 states that German manufacturers place a higher emphasis on long-term customer-oriented strategies than on short-term financial gain. This proposition was fully supported as German companies were found to have very little concern for short-term profit maximisation and survival as key company goals. They appeared to pursue the more offensive objectives of product and market expansion, although many British companies also claimed, in addition to their short-term defensive approach to business, to give a high priority to these goals.

HS2 There was little doubt in this research that the German machine tool manufacturers interviewed were pursuing strategies based on product quality and reliability. However, it should be noted that British companies also claimed to adopt a similar approach, although findings on product age and new product development activities suggest that the Germans are more successful in their pursuit of this strategy. However, the proposition is only partially supported as many German companies were also found to be developing strengths in more customer-based factors such as customer service and problem solving capabilities.

HS3 As hypothesized, the product was found to be the most important element of the marketing mix in the German companies interviewed. In line with their product quality

German manufacturers appeared to develop premium pricing strategies for their machine tools. British companies, however, were seemingly not able to command the same premium prices for their products. This suggests that price is a more important element of the marketing mix to British companies and the proposition is thus supported.

HO1 The findings of this research suggest that British and German machine tool manufacturers are organised along similar lines with no significant difference in the level of informality in organisational structure. In addition there was no evidence to suggest that the German organisation structures were any more customer-focussed such that this proposition is rejected.

HO2 It was hypothesized that British organisations operate more formal planning and control systems with greater emphasis on long-term planning. The exact opposite was found to be the case in these machine tool companies, therefore, this proposition is also rejected.

HO3 There was no clear evidence that German managers adopt a more formal approach to communications. However, as hypothesized, team-work was found to be more common in German companies with inter-departmental cooperation apparently being more effective than in British machine tool manufacturers. Whilst the first part of this proposition is rejected the second part is supported.

HO4 The German managers responding to the question did appear to be better educated than their British counterparts, although samples sizes were very small. However, the second part of this hypothesis is rejected because management training was seen to be more important to German companies.

HO5 There was no evidence to suggest that there was a greater flow of information in German companies. In addition the commitment by employees to their companies appeared to be uniform such that this proposition is rejected.

9.3.2 Proposition Relating to the Level of Marketing Orientation in British and German Companies

One central hypothesis of this research contends that, whilst being predominantly product-led, German companies are more marketing oriented than their British counterparts.

H2 The German manufacturers interviewed were found to adopt a greater level of market focus and customer orientation. They also appeared to adopt a more coordinated approach to their business with effective integration of departments to ensure success for the company. All German companies interviewed were profitable as a result of adopting a dual business orientation combining both the product and marketing concepts. British companies, however, were found to be more profitable, although this can largely be attributed to their short-term business perspective and the

importance they attached to achieving a good current profit performance. German companies were found to be more innovative and were actively developing new machine tools in line with their strategy based on product quality and reliability. This proposition is, therefore, supported.

9.3.3 Propositions Relating to the Differences Between Successful and Less Successful Companies

The eight propositions tested with regard to successful and less successful companies and their marketing strategies and organisational characteristics are summarized below.

HA1 This research found that less successful companies in the machine tool industry adopt a very short-term approach to business emphasising goals such as preventing a decline in their market share and survival. Meanwhile successful companies were found to develop longer-term goals with greater emphasis on market share. Although many of the less successful companies also claimed to attach importance to the longer-term goals of product and market expansion this proposition is supported.

HA2 Successful manufacturers did appear to pursue strategies based on product differentiation. Although many of their less successful counterparts also claimed to develop similar strategies, the level of activity in R & D in the top-performing companies suggests that they are more aggressive and successful in their chosen strategy. In spite of a clear

product orientation a significant number of successful companies were found to be developing a competitive advantage in customer-based attributes like service. This proposition is, therefore, only partially supported.

HA3 As hypothesized, more successful companies did appear to have clearly defined target market segments, however, the result was not significant. Successful companies did, though, appear to be better at identifying and satisfying customer needs for superior products such that this proposition is tentatively supported.

HA4 As hypothesized, successful companies did appear to have a good understanding of the competitive activity in their key markets. Not only did they seem to have a more realistic view of their own competitive performance, but they also updated their competitor intelligence more frequently than their less successful counterparts. This proposition is, therefore, fully supported.

HA5 There was evidence to suggest that the successful manufacturers interviewed did not compete on the basis of price as over 60% said that low price was not important to their performance. However, no significant difference was found between the two groups of companies in the prices charged for their machine tools. This proposition cannot, therefore, be fully supported.

HA6 More of the successful companies interviewed were found to operate a matrix structure suggesting a higher degree of organisational flexibility. The possession, by the top-performing companies, of a flexible and responsive R & D capability along with regular competitor updates suggests further support for this proposition.

HA7 More successful companies were found to operate long-, medium- and short-term plans such that this proposition is fully supported.

HA8 Successful companies in this research were found to favour a balance between formal and informal communications. Meanwhile, control procedures appeared to be tighter with the top performers placing priority on efficiency and control. This proposition is, therefore, supported.

9.3.4 Proposition Relating to the Level of Marketing Orientation of Successful and Less Successful Companies

The other central hypothesis to this research states that successful companies display a greater marketing orientation than their less successful competitors.

H1 Although 90% of the companies interviewed were product-led successful companies were found to display more characteristics associated with a marketing orientation. They were found to have a better understanding of their key

markets and the needs of their customers. Although not completely customer-oriented, successful companies appeared to be more likely to develop longer-term customer relationships and to involve the customer more in the development of new products. In addition they were more likely to measure customer satisfaction and to have a service department, although size could be an influencing factor. Successful companies were found to adopt a longer-term perspective to their business than their less successful counterparts, but, although, they were found to be innovative so were a high percentage of the less successful companies. No difference was found between the two groups of companies with regard to adopting a coordinated marketing approach and many less successful companies were found to be achieving higher levels of profitability than their more successful rivals. Manufacturers in both groups were found to have a reasonable level of competitor orientation, although successful companies updated their market information more regularly than their less successful counterparts. Whilst successful machine tool manufacturers displayed many characteristics associated with a marketing orientation so did many of the less successful companies with the result that the proposition can only be supported in part as many aspects of a marketing orientation were not unique to successful companies.

9.3.5 The Marketing Strategies and Organisational Characteristics of Subsidiaries

An interesting dimension of this research was the inclusion of data on the British subsidiaries of German manufacturers. Although no propositions were developed specifically relating to the subsidiaries, it is useful to summarise the key differences between them, their German parents and their British competitors. A discriminant analysis revealed that the subsidiaries were more like British manufacturers than their parents in terms of company goals, strategies and organisation. This was supported by many of the findings of the chi-square and cluster analyses.

In terms of company goals the subsidiaries, along with the British manufacturers placed a high priority on survival, short-term profit maximisation and preventing a decline of market share. However, there was a conflicting result as over 90% of subsidiaries also wanted to increase their market share. This could be as one Managing Director said because "With our kind of machine tool package we either have 100% market share or 0%". Like their British rivals a fairly high percentage of subsidiaries claimed to sell products not in direct competition, although this could be because their parent organisations have developed machine tools not yet available from British manufacturers.

In addition to a product orientation, all subsidiaries said that they possessed a high degree of sales orientation which

reflects their role as a sales and service operation. In their approach to target marketing the subsidiaries resembled their German parents more closely as over 80% of them claimed to have clearly defined target market segments. This could be because they were set up to serve specific industries. However, unlike their parents, less than 30% of the subsidiaries said that their products were tailored to meet customer needs. This suggests that the domestic market is more important to German machine tool manufacturers.

In keeping with a focus on product quality as a source of competitive advantage over 90% of subsidiaries appeared to be commanding premium prices for their products, again resembling their parents more closely. In spite of charging premium prices it was surprising to learn that apparently half of the subsidiaries were selling products, developed over 20 years ago, into the British market. This compared with over 70% of the German manufacturers who claimed to be selling products developed within the last ten years. Perhaps the British market is seen as being less sophisticated and that older technology is still acceptable.

In organisational terms the subsidiaries were in many respects unique probably because of their size. Fewer of them developed formal long-term plans than their German parents, although twice as many of them did so than their British rivals. However, they resembled British manufacturers more in their poor approach to medium- and short-term planning. The control procedures were looser in

the subsidiaries than in either of the other two samples, although size is likely to be a determining factor. The qualifications of managers was found to differ from those of British and German managers with a surprising 40% of the respondents having no qualifications at all. Management training was also given a low priority similar to that observed in the British companies. The predominant style adopted by senior managers in subsidiaries mirrored that found in British companies with the emphasis on informality. Inter-departmental cooperation also appeared to be less effective in the subsidiaries than in their parents.

9.4 Practical Implications

The findings of this research raise a number of practical implications for both British and German machine tool manufacturers. The analysis suggests that the British manufacturers possess more of the characteristics associated with less successful companies, whilst the Germans appear to be more successful. The British manufacturers appear to have a preoccupation with short-term goals which has probably contributed, in some way, to the overall decline of the British machine tool industry. Unless managers in this important sector change their approach to business a further decline in the British machine tool industry seems inevitable.

There are, however, also some encouraging results which suggest that some British manufacturers are aware of the

importance of product quality and the need to invest in new products for the future. If this could be coupled with a greater focus on building a longer-term business there would be some hope for the British machine tool industry. It was also encouraging to see that at least one British company was in the top-performing cluster alongside six German manufacturers. It is possible, therefore, for British manufacturers to be successful in this industry, but the less successful British companies need to develop longer-term objectives and strategies, focussing on product and market expansion and customer needs. It would appear that British customers are willing to pay premium prices for their machine tools, and so there is scope for investing more in new product development. Also by working with their customers, British manufacturers should be able to improve their competitiveness.

The research also has a number of implications for German machine tool manufacturers, particularly in their approach to overseas markets. The findings of this study suggest that, although many successful German manufacturers have a presence in the British market their commitment to that market appears to be low. In order to translate their success in the German market fully to the British market German manufacturers need to encourage their subsidiaries to pursue the same long-term goals based on product and market expansion.

The question needs to be asked as to why the subsidiaries are so concerned with survival and profit maximisation. Is it, as all the participating subsidiaries intimated, because they operate autonomously, thus formulating their own goals? Or is it that their German parent organisations do not maintain enough control over their overseas operations?

The observation that German manufacturers do not appear to tailor products to meet the needs of British customers suggests that their domestic market is more important to them. One Managing Director of a subsidiary observed that "What is good enough for the German market is good enough for the world"?

The research questions why German machine tool manufacturers have set up subsidiaries in Britain as their commitment to these overseas operations appears not to be as high as, for example, that shown by the Japanese (Wright et al 1989).

It was particularly interesting that only 15% of the German manufacturers interviewed perceived the Japanese to be their major competitors. In a time in which Japan is the world's largest producer of machine tools there would appear to be an element of complacency here.

9.5 Research Implications

Prior to this research much of the information on the marketing strategies of German companies was either

anecdotal in nature (eg. Limprecht and Hayes 1982) or was considered only as part of investigations into other more specific marketing-related or management issues (eg. Parkinson 1984, Lawrence 1980, Locke 1989, Schlegelmilch 1986a, Reid and Schlegelmilch 1990, Horowitz 1980). The literature suggests that this is the first study to specifically compare the marketing strategies of British and German companies. This research, in spite of its methodological weaknesses, has, therefore, gone some way towards filling a gap in the marketing literature. A study of the marketing strategies of British and German machine tool manufacturers has revealed a number of key differences which could form the basis of hypotheses in future comparative work.

In addition to addressing a weakness in the management literature on Anglo-German approaches to marketing strategy, this study has shed further light upon the factors that make a company successful. Again there was a noticeable gap in the literature for researchers have previously concentrated their efforts on British, Japanese and American companies (eg. Doyle et al 1986 Wright et al 1989, Kotler and Fahey 1982). Until now the successful German economy has virtually been ignored with the exception of comparative studies with Japanese organisations (eg. Meissner 1986, Trevor et al 1986). Until this study there appears to have been no comparative study of successful British and German organisations.

9.6 Research Extensions

Given the methodological weaknesses of this research further studies comparing British and German marketing strategies would need to be conducted to validate the findings presented here. More industries should be examined in order to establish whether there are certain marketing strategies and organisational characteristics unique to the machine tool industry or indeed to German companies. Further research is also needed in order to determine whether successful German companies possess a set of unique characteristics or whether they resemble successful companies in countries like Japan and the United States.

The study could be broadened to include other European countries to establish whether successful organisations in one country resemble their successful counterparts in an other, ie. is success country specific? There would also be some value in assessing the marketing effectiveness of companies in the European Community as it takes on Japanese and American competition in a single market economy.

The review of the literature in Chapters Two and Four suggests that there is a lack of empirical research into German companies both in terms of marketing strategy and organisational characteristics. However, the difficulties experienced by the researcher in gaining access to German companies needs to be taken into consideration in planning future research. A study of approaches to data collection in

different countries may provide an interesting avenue for future research.

One thing which has struck the researcher in reviewing the literature on the marketing orientation of companies is that often researchers concern themselves with the trappings of marketing. To truly assess the marketing effectiveness of a company a different approach is needed which considers more the substance of marketing.

In this research the top-performing companies were successful as a direct result of adopting a product-led approach to business. In industrial markets this is no doubt often the case, therefore, further research could consider the importance of such a concept in engineering companies.

A further dimension of this research is the relationship between German manufacturers and their British subsidiaries. The findings highlighted a number of interesting issues which questioned the commitment of German machine tool manufacturers to the British market. A research project could consider, in more detail, the headquarter-subsidiary relationship in German organisations. A comparison here with the approach adopted by Japanese manufacturers would also make an interesting study. Related to this issue is the influence of the nationality of senior managers in subsidiaries when developing goals and strategies.

In the course of this study it has become apparent that much of the empirical research into the approach to marketing by British companies has come to broadly similar conclusions. It would be interesting to examine why, given so much publicity on the dangers of pursuing short-term financial gain at the expense of long-term business development, so many British managers are ignoring this good advice. Many of them appear to understand the things they need to do to be successful but are unable to implement them. Further research could seek to establish the reasons for this. Coupled with this is the influence of the "excellence" literature on managers. Has the desire to be "successful" become an overriding goal such that long-term business development suffers as a result?

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APPENDIX A

LETTER FROM MTTA

ENDORSING THE RESEARCH

THE MACHINE TOOL TECHNOLOGIES ASSOCIATION

28 February 1990

Mrs V Shaw
Teaching Associate
Warwick Business School
University of Warwick
Coventry CV4 7AL

Our Ref: rfg/CON

Dear Mrs Shaw

Further to our conversation and subsequent correspondence I am pleased to confirm the Association's support for your research project on the marketing strategies and organisational characteristics of British and West German machine tool manufacturers, and wish you success.

The MTTA and its members would certainly be most interested to hear from you on your progress and on the conclusions of your study.

Yours sincerely

R F GRIFFITHS

Technical Manager

APPENDIX B1

LETTER FROM VDW

DECLINING TO SUPPORT THE RESEARCH

VDW

Verein Deutscher Werkzeugmaschinenfabriken e.V.

VDW · Corneliusstraße 4 · D-6000 Frankfurt 1

UNIVERSITY OF WARWICK
Herrn Prof. Peter Doyle
Marketing

GB - COVENTRY CV4 7AL

Corneliusstraße 4
D-6000 Frankfurt 1
Telefax 069-756081-11
Teletex
Telex 412607
Telegramm-Adresse MODUL
Telefon 069-756081-0
Durchwahl

Deutsche Bank 965558
(BLZ 50070010)
Postscheck FFM. 148508-609
(BLZ 50010060)

-43

Ihr Zeichen	Ihre Nachricht vom	Unser Zeichen	Datum
	30.01.90	Hab/scha-WS	14. 02. 1990

Sehr geehrter Herr Prof. Doyle,

wir nehmen Bezug auf Ihre Anfrage zur Unterstützung Ihrer Marketing-Studie.

Wie Sie vermutlich wissen werden, wird im Auftrag der EG-Kommission, begleitet vom europäischen Dachberband der Werkzeugmaschinenverbände, CECIMO, eine umfangreiche Untersuchung durchgeführt, bei der auch zahlreiche deutsche Firmen intensiv befragt wurden. Daneben hat auch unser Verband Studien in Auftrag gegeben, die unsere Firmen in beträchtlichem Maße in Anspruch nehmen.

Vor diesem Hintergrund bitten wir Sie um Verständnis, wenn wir Ihrem Wunsch nach einem Unterstützungs-Schreiben nicht nachkommen können.

Mit freundlichen Grüßen

VEREIN DEUTSCHER WERKZEUGMASCHINENFABRIKEN e.V. (VDW)
i.V.

Dr. G. Habig

APPENDIX B2

LETTER FROM CECIMO

DECLINING TO SUPPORT THE RESEARCH

Comité Européen
Coopération des Industries
de la Machine-Outil

crétariat: Rue des Drapiers 21
B-1050 Bruxelles
Adr.tél.: Cecodimo
Télex: 21078

Téléphone: (02) 510 23 51
(02) 510 23 11
Téléfax: (02) 510 23 01

To Mrs. Vivienne SHAW,
Teaching Associate,
WARWICK Business School,
University of Warwick,

GB - COVENTRY CV4 7AL

votre référence	votre lettre du	notre référence	le
		HJ/DI/ETU	January 9, 1990

Dear Madam,

Following your letter of November 24, 1989, it is not possible for CECIMO to endorse officially the study you plan to undertake.

Nevertheless, the MTTA, The Machine Tool Technologies Association, has agreed to help you. Could you therefore take contact with Mr. R. GRIFFITHS at MTTA,
Address: 62 Bayswater Road, London W2 3PS
Phone: 01-402-6671.

I hope this will help you and wishing you full success in your research programme I remain,

Yours sincerely,

Jean Heymans,
Secretary General.

cc. Mr. R. GRIFFITHS, MTTA

No 90/22.

APPENDIX C1

LETTER TO BRITISH AND SUBSIDIARY MACHINE TOOL COMPANIES

WARWICK
BUSINESS SCHOOL

25th April, 1990

Dear Mr «name»,

I am writing to ask for your help with a project currently being conducted at Warwick Business School into successful marketing strategies for the 1990's. The research will undertake a comparative study of British and German organisations with particular regard to their strategies for the Single European Market.

The study aims to analyse and interpret possible differences between the two countries, whilst identifying which strategies and organisational characteristics are most likely to influence a company's success.

The success of this project depends on the support of companies like yours. I would be most grateful, therefore, if you could spare some of your valuable time to participate in the research. Participation would take the form of an interview, which would take approximately one hour. All information received in the course of the interview would be treated in the strictest confidence.

The results of the project will be presented in aggregate form, from which no conclusion can be drawn on individual companies. A copy of the overall results will be provided free of charge to all companies participating in this study.

Mr Griffiths of the Machine Tool Trades Association (MTTA) has given the endorsement of the association to this comparative study. I hope, therefore that I can also count on your goodwill and support in ensuring that the project is a complete success.

I will be contacting you in the next few days to discuss the involvement of your company in this research project.

Yours sincerely,

Vivienne Shaw
Teaching Associate

THE UNIVERSITY OF WARWICK COVENTRY CV4 7AL UNITED KINGDOM
TELEPHONE (0203) 524306 TELEX 317472 UNIREG FAX (0203) 523719 OR 524411

APPENDIX C2

LETTER TO GERMAN

MACHINE TOOL MANUFACTURERS

WARWICK
BUSINESS SCHOOL

den 16. Februar 1990

Sehr geehrter Herr

als Teil einer umfangreichen Untersuchung befasst sich die Universität Warwick mit einer Studie von Marketing-Strategien und organisatorischen Eigenschaften erfolgreicher Firmen.

Dieses Projekt hat schon eine Untersuchung britischer und japanischer Firmen beinhaltet. Wir wollen jetzt die Forschung verbreiten, und einen britisch-deutschen Vergleich unternehmen.

Die Untersuchung hat zwei Ziele:

1. die Unterschiede zwischen den für die neunzige Jahre Marketingstrategien in Grossbritannien und der Bundesrepublik Deutschland zu analysieren.

2. die Strategien und die organisatorischen Eigenschaften zu identifizieren, die den Erfolg am Meistens beeinflussen.

Der Erfolg dieses Projekts hängt von der Unterstützung Ihrer Firma ab. Wir wären dankbar, wenn Sie uns einige Zeit sparen könnten, um an der Forschung teilzunehmen. Ein Interview würde etwa eine Stunde dauern, und alle uns zugehenden Informationen werden vertraulich behandelt. Die Ergebnisse dieser vergleichenden Untersuchung werden Ihnen kostenlos zur Verfügung stehen.

Ein Mitglied unseres Teams, Vivienne Shaw, wird in März/April 1990 Deutschland besuchen, um Interviews zu führen. In einigen Tagen wird Frau Shaw Sie anrufen, um die Teilnahme Ihrer Firma an dieses internationales Projekt zu besprechen. Wir hoffen, dass wir eine positive Antwort von Ihnen erhalten können, um den Erfolg dieses Projekts zu sichern.

Mit freundlichen Grüssen,
Warwick Business School

Professor Peter Doyle
Professor of Marketing
and Strategic Management

Vivienne Shaw
Teaching Associate

THE UNIVERSITY OF WARWICK COVENTRY CV4 7AL UNITED KINGDOM
TELEPHONE (0203) 524306 TELEX 317472 UNIREG FAX (0203) 523719 OR 524411

APPENDIX D

LIST OF COMPANIES

PARTICIPATING IN THE RESEARCH

British

Beaver Machine Tools
Birkett Cutmaster
Bryant Symons
BSA Machine Tools
Cardinal Broach
Excel Machine Tools
FMT
Hey Machine Tools
Leslie Hartridge
Matrix Churchill
P G Technology
Systematic Drillhead
Wickman Bennett
Wyvern Machine Tools

Two British companies did not want their names to be disclosed.

German

Alfing Kessler
EMAG
Ex-cell-o
Häberle
Heller
Klingelnberg
Maho
Simon
SPW
Trumpf
Walter

Two German companies did not want their names to be disclosed.

Subsidiaries

Associated Alfing Kessler
Eisele
EMAG/Ex-cell-o
Gildemeister
Heckler & Koch
Heller
Klingelnberg
Maho
TBT
Trumpf
Walter

APPENDIX E

LETTER FROM PROFESSOR MÜLLER-MERBACH

UNIVERSITÄT KAISERSLAUTERN

Betriebsinformatik und Operations Research
Prof. Dr. Heiner Müller-Merbach

Universität Kaiserslautern · Postfach 3049 · 6750 Kaiserslautern

Erwin-Schrödinger-Straße
6750 Kaiserslautern

Gebäude 14/482

Telefon (0631) 2050 - Durchwahl 205-2982
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Zahlungen an Landeshochschulkasse Mainz
Sparkasse Mainz Nr. 54825 (BLZ 55050120)
Postscheckkonto: Ludwigshafen a. Rh. Nr. 25011-671

Frau
Vivienne Shaw
University of Warwick
Warwick Business School
Coventry CV4 7AL
England

Ihre Zeichen	Ihre Nachricht vom	Unsere Nachricht vom	Unsere Zeichen	Kaiserslautern
			MM/Ru	

Sehr geehrte Frau Shaw,

in der Zwischenzeit habe ich versucht, deutsche Werkzeugmaschinenfirmen für Ihr Interview zu gewinnen. Ich stieß dabei auf eine vorher nicht vermutete Zurückhaltung, teilweise sogar auf Ablehnung. Ich hatte den Eindruck, daß die Gründe für die Ablehnung zumeist in den folgenden Punkten lagen:

1) Die Firmen werden durch sehr viele empirische Forschungsvorhaben stark belastet, teilweise sogar belästigt. Es ist eine generelle Zurückhaltung zu spüren. Nur dann sind die Firmen für empirische Arbeiten verfügbar, wenn ein unmittelbarer Nutzen für sie herausspringt.

2) Ich spürte in diesem Fall eine gewisse (unausgesprochene) Abneigung gegenüber ausländischen Interviewpartnern. Man schien zu vermuten, daß erstens der Nutzen durch Rückinformation geringer sei als bei empirischen Untersuchungen von Universitäten des eigenen Landes. Ferner bestand möglicherweise auch die Befürchtung, daß durch Preisgabe von Information ausländische Wettbewerber einen besonderen Nutzen erhielten.

3) Da meine Mitarbeiter und ich nicht voll mit dem Projekt vertraut sind, hatten wir auch Schwierigkeiten, die deutschen Firmen von dem übergeordneten Zweck dieser Studie zu überzeugen.

Jedenfalls war der Versuch praktisch völlig ohne Erfolg. Sowohl beim VDMA als auch bei den einzelnen Firmen fand ich keine Bereitschaft für eine Kooperation.

Insofern halte ich den Weg, den Sie jetzt eingeschlagen haben, für gut, nämlich die UK-Niederlassungen der deutschen Firmen anzusprechen und über diese den Zugang den Zentralen zu erhalten.

Mit freundlichen Grüßen

Heiner Müller-Merbach

APPENDIX F1 - BRITISH QUESTIONNAIRE

THE MARKETING STRATEGIES AND ORGANISATIONAL CHARACTERISTICS OF BRITISH AND GERMAN MACHINE TOOL MANUFACTURERS

COMPANY :

INTERVIEWEE :

RESPONSIBILITY :

1. COMPANY BACKGROUND

1.1 Brief background to company.

1.2 Size

No. of employees _____

1.3 Ownership

publicly quoted	☐
subsidiary	☐
privately owned	☐
family business	☐
other (please specify)	☐

1.4 How does your company operate overseas?

	Worldwide	Europe
Direct Export	☐	☐
Joint Ventures	☐	☐
Agents/distributors	☐	☐
Overseas subsidiaries	☐	☐
Other (please explain)	☐	☐

1.5 General product range and age of products

Product Range Age

2. PERFORMANCE

2.1 Do you consider your company to be:

very unsuccessful — 1 — 2 — 3 — 4 — 5 — very successful

2.2 What criteria do YOU use to measure success?

2.3 Do you use market share as a measure of success?

yes ☐ no ☐

if YES

2.4 What is your current

Market Share (Machine tools)

Domestic market _____ %

Europe _____ %

Turnover (Machine tools)

Total for company _____

Domestic market _____

Europe _____

Net Profit before tax (Machine Tools) as percentage of turnover

Total for company _____

Domestic market _____

Europe _____

2.5 What was your overall growth in the past five years?

Turnover _____

Profitability _____

2.6 Over the past five years how has your performance compared with the average for the machine tool industry?

much worse 1 2 3 4 5 much better

2.7 What percentage of your total sales (in value) is exported?

2.8 Which are currently your key export markets? And what proportion of total sales do they represent?

1.

2.

3.

4.

5.

2.9 What percentage of your sales are to European Community countries?

2.10 What was the growth in your EC business over the past five years?

2.11 What growth do you expect in the next five years?

In total _____

in EC business _____

3. MARKET CHARACTERISTICS

3.1 What key trends do you see in the market for machine tools?

3.2 What, in your opinion, are the main customer groups or segments in the machine tool market?

3.3 Which of these customer groups does your company target?

3.4 What bases do you use for segmenting the market?

4. OBJECTIVES AND STRATEGIC FOCUS

4.1 Does your company establish specific marketing objectives? If YES what are they?

4.2 How important will the following company goals be in the next five years? Rate the importance of each of the goals on a scale of 1 to 5 (1 = not at all important; 5 = very important)

Expansion into new markets	1	2	3	4	5
Expansion into new products	1	2	3	4	5
Increase Market Share	1	2	3	4	5
Productivity improvement	1	2	3	4	5
Short term profit maximisation	1	2	3	4	5
Prevent decline of market share	1	2	3	4	5
Survival	1	2	3	4	5
Other (please specify)	1	2	3	4	5

4.3 How much do the following statements reflect your company's approach? (Rate 1 = not at all; 5 = exactly)

Our performance is determined by producing quality goods at best possible prices	1	2	3	4	5
Performance depends upon the effectiveness with which we sell and promote our products in the market	1	2	3	4	5
Performance depends upon identifying changing customer requirements and matching those needs better than the competition	1	2	3	4	5
Success depends on the efficient use of assets and resources to maximise profits	1	2	3	4	5

5. PRODUCT/MARKET CONSIDERATIONS

5.1 How much do the following statements describe the strategy of your company? (Rate 1 = not at all; 5 = exactly)

Identifies key areas for success in the industry and seeks to gain strategic advantage over the competition	1	2	3	4	5
Concentrates on products not in direct competition with others	1	2	3	4	5
Develops new products and processes	1	2	3	4	5
Opens up new markets	1	2	3	4	5
Concentrates on product quality and reliability as a source of competitive advantage	1	2	3	4	5

5.2 How important to the company is it to achieve a good current profit performance?

not at all important — 1 2 3 4 5 — very important

5.3 How important is low price to your performance?

very unimportant — 1 2 3 4 5 — very important

5.4 How do your prices compare with the competition?

much lower — 1 2 3 4 5 — much higher

5.5 Are your products seen as meeting

Basic needs — 1 2 3 4 5 — Superior performance needs

6. CUSTOMER PHILOSOPHY

6.1 How much do the following statements describe your approach to customers in your major markets? (1 = not at all; 5 = exactly)

We have clearly defined target market segments	1	2	3	4	5
We tailor our products to meet customer requirements	1	2	3	4	5
We do not segment the market very effectively	1	2	3	4	5
We sell to the whole market - to anyone willing to buy at our price	1	2	3	4	5

6.2 How important are the following to your customers? (Rate 1 = not at all important, 5 = very important)

Low price	1	2	3	4	5
Product quality	1	2	3	4	5
Customer Service	1	2	3	4	5
Product availability	1	2	3	4	5

6.3 How important to your company is customer contact?

not at all important — 1 2 3 4 5 — very important

6.4 Is your contact with customers maintained on a

short term basis — long term continuing basis

1 2 3 4 5

6.5 How is contact predominantly made with customers?

6.6 How important is customer satisfaction to your company

not at all important — very important

1 2 3 4 5

6.7 Do you measure customer satisfaction?

Yes ☐ No ☐

How?

6.8 How important is after-sales service to your company?

not at all important — very important

1 2 3 4 5

6.9 What does customer service mean to your company?

6.10 How does your company handle customer service?

7. COMPETITOR INFORMATION

7.1 How would you describe the competition in your markets?

very weak 1 2 3 4 5 very aggressive

7.2 Is your major competitor

British ☐

German ☐

Japanese ☐

Other ☐

(please specify)

7.3 In terms of other companies who are your main competitors?

1.

2.

3.

4.

5.

7.4 Which of the following strategies does your main competitor follow? Please rank in order of importance (1 = most important)

Low price ☐

Product quality ☐

Product innovation ☐

Long term
Market domination ☐

Short term profitability ☐

Other (please specify) ☐

7.5 With regard to the following factors, how does your performance compare with that of your competition?

Product quality

more inferior — 1 2 3 4 5 — more superior

Product range

much narrower — 1 2 3 4 5 — much broader

Product design

more inferior — 1 2 3 4 5 — more superior

Product performance

much worse — 1 2 3 4 5 — much better

Customer support

much worse — 1 2 3 4 5 — much better

7.6 How often do you update your information on:

	Competitors	Customers	Market Share
daily	☐	☐	☐
weekly	☐	☐	☐
monthly	☐	☐	☐
quarterly	☐	☐	☐
yearly	☐	☐	☐
Other	☐	☐	☐

7.7 How do management receive market information?

Formal written reports — 1 2 3 4 5 — informal verbal reports

8. COMPETITIVE ADVANTAGE

8.1 Which of the following do you consider to be your most important strengths relative to the competition? Please rank (1 = most important)

Superior product performance	☐
Lower prices	☐
Better customer service	☐
Better image	☐
Better product availability	☐
Other (please specify)	☐

9. NEW PRODUCT DEVELOPMENT

9.1 How much do the following statements describe your company? (Rate 1 = not at all, 5 = exactly)

Manufacturing					
Pilot and medium scale manufacturing	1	2	3	4	5
Flexible with medium scale runs	1	2	3	4	5
Efficient large scale production	1	2	3	4	5
Research And Development					
Strong on advanced research capability	1	2	3	4	5
Flexible and responsive R & D capability	1	2	3	4	5
Strong product design capability	1	2	3	4	5
Strong cost reduction capacity	1	2	3	4	5

9.2 How much has your company invested in R&D in the past five years?

_____ % of turnover

9.3 To what extent is the customer involved in the development of new products and processes?

not at all 1 2 3 4 5 very frequently

9.4 In what way is the customer involved?

9.5 In comparison with your competitors do you test and experiment with new products?

much less 1 2 3 4 5 much more

9.6 Do you think that your company's tolerance of mistakes or failures is

very low 1 2 3 4 5 very high

10. ORGANISATIONAL CHARACTERISTICS

STRUCTURE

10.1 What are the basic units into which your company is split?

10.2 What % of people in your company are staff?

10.3 Do you have a separate marketing department?

if **YES**

How many people are employed in the marketing department?

What are its main functions?

if **NO**

Who is responsible for sales?

Who is responsible for product/market decisions?

Who is responsible for marketing research?

Who is responsible for advertising and other promotional activities?

Who is responsible for after sales service?

10.4 What is your company's annual expenditure on advertising and promotion?

% turnover

10.5 How would you describe your company's organisation?

Hierarchical fixed organisation	1 2 3 4 5	Informal Ad Hoc
Top down communications	1 2 3 4 5	Jumbled communications
Formal communications	1 2 3 4 5	Informal communications

10.6 How much do the following describe your company's organisation? (Rate 1 = not at all; 5 = exactly)

Emphasis on flexibility	1	2	3	4	5
Encourages risk-taking	1	2	3	4	5
Emphasis on efficiency and control	1	2	3	4	5
All departments cooperate effectively to ensure the success of the company	1	2	3	4	5

STAFF

11.1 Would you describe the management in your company as:

People recruited to the job from outside — 1 2 3 4 5 — people who have been promoted from within

11.2 In your opinion does the management in your company show a good capacity to react quickly and effectively to changes in the market?

not very good — 1 2 3 4 5 — very good

11.3 What is your background?

Formal qualifications Subject

11.4 What language skills do you and your managers have?

Manager	Language	Level of Fluency
_____	_____	_____
_____	_____	_____
_____	_____	_____

11.5 How important is a knowledge of foreign languages to your performance?

not at all important — very important

1 2 3 4 5

11.6 Have you or any of your managers worked in other European countries?

SKILLS

12.1 What do you regard as the distinctive skills or abilities of management in your company?

12.2 How does this compare with the competition?

much worse — much better

1 2 3 4 5

12.3 How important is management training to your company?

not very important — very important

1 2 3 4 5

12.4 Does your company provide management training?

12.5 How much do the following describe your company's approach to management training? (Rate 1 = not at all, 5 = exactly)

Early on-the-job training	1	2	3	4	5
Training only for specific functions	1	2	3	4	5
Broad all-round training	1	2	3	4	5
Training is all in-house	1	2	3	4	5
Retrain staff as job requirements change	1	2	3	4	5
Regular training of staff throughout their career with the company	1	2	3	4	5

12.6 How many days a year, on average, does a senior manager attend training courses?

STYLE

13.1 How much do the following describe your company?

Senior managers communicate through formal channels	1 2 3 4 5	Communications are very informal
Top executive meetings are rare	1 2 3 4 5	Top executive meetings are regular
Communication between management and employees is infrequent	1 2 3 4 5	Communication between management and employees is frequent
Team work is rare	1 2 3 4 5	Team work is common

SYSTEMS

14.1 How much do the following describe the approach of your company to planning? (Rate 1 = not at all, 5 = exactly)

Formal long range plans (5 years)	1	2	3	4	5
Formal medium to short term plans	1	2	3	4	5
Explicit, but informal statements of goals	1	2	3	4	5
No formal plans	1	2	3	4	5

14.2 In terms of planning and action how would you describe your company?

Planning is most important	1 2 3 4 5	Action is most important

14.3 How important are the following control procedures to your company? (Rate 1 = not at all important, 5 = most important)

Formal assessment of goals and objectives	1	2	3	4	5
Informal regular communications to ensure things are going to plan	1	2	3	4	5
Formal control aimed towards corrective action	1	2	3	4	5

14.4 How would you describe the degree of supervision and control within your organisation?

very loose — 1 2 3 4 5 — *very tight*

SHARED VALUES

15.1 Besides goals like profitability, market share, growth etc., what other objectives are considered important to you and your company?

If more than one rank in order of importance.

Objective	**Rank**
1.	☐
2.	☐
3.	☐

15.2 How would you describe the employees' understanding of and commitment to the company's business objectives, strategies and values?

very low — 1 2 3 4 5 — very high

APPENDIX F2 - GERMAN QUESTIONNAIRE

MARKETINGSTRATEGIEN BRITISCHER UND DEUTSCHER WERKZEUGMASCHINENHERSTELLER

FIRMA :

BEFRAGTER :

VERANTWORTLICHKEIT :

1.VERGANGENHEIT DER FIRMA

1.1 Kurze Geschichte des Unternehmens

1.2 Größe

Beschäftigungszahl _____

1.3 Besitzerschaft

Aktiengesellschaft ☐

Tochtergesellschaft ☐

Privatgesellschaft ☐

Familiengesellschaft ☐

Anderes ☐

(bitte ergänzen Sie)

1.4 Wie führen Sie das Geschäft im Ausland?

	Weltweit	Europa
Direktexport	☐	☐
Joint Venture	☐	☐
durch Zwischenhändler	☐	☐
durch Tochtergesellschaften	☐	☐
Anderes (bitte erklären Sie)	☐	☐

1.5 Produktreihe und Produktalter

Produkt Alter

2. LEISTUNG

2.1 Ihrer Meinung nach ist Ihre Firma

erfolglos 1 2 3 4 5 sehr erfolgreich

2.2 Nach welchen Maßstäben beurteilen SIE Ihren Erfolg?

2.3 Benutzen Sie Marktanteil als Erfolgsmaßstab?

Ja ☐ Nein ☐

2.4 Was ist Ihr jetztiger

Marktanteil (Werkzeugmaschinen)

Inland _____

Europa _____

Umsatz (Werkzeugmaschinen)

insgesamt _____

Inland _____

Europa _____

steuerpflichtiges Nettogewinn als Prozent des Umsatzes

unter 0% ☐

0% - 10% ☐

10% - 20% ☐

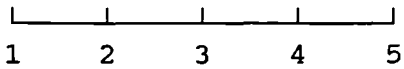
über 20% ☐

2.5 In den letzten fünf Jahren was war das Wachstum

Ihres Umsatzes _____

Ihres Gewinns _____

2.6 Wie hat sich in den letzten fünf Jahren Ihre Leistung mit dem Durchschnitt der Werkzeugmaschinenindustrie verglichen?

viel schlechter  viel besser

1 2 3 4 5

2.7 Welcher Anteil Ihres gesamten Umsatzes wird exportiert?

2.8 Wo sind Ihre Hauptexportmärkte?

1.

2

3.

4.

5.

2.9 Welcher Anteil Ihres Umsatzes wird an EG-Länder ausgeführt?

2.10 In den letzten fünf Jahren was war das Wachstum Ihres EG-Geschäfts?

2.11 Um wieviel wird Ihr Geschäft in den nächsten fünf Jahren wachsen?

insgesamt _____

EG-Geschäft _____

3. MARKTEIGENSCHAFTEN

3.1 Welche bedeutenden Tendenzen gibt es im Augenblick in Ihren Haupthandelsmärkten?

3.2 Ihrer Meinungnach was sind die wichtigsten Kundengruppen in der Werkzeugmaschinenindustrie?

3.3 Welche Kundengruppen sind für Ihre Firma wichtig?

3.4 Nach welchen Gesichtspunkten segmentieren Sie den Markt?

4. ZIELE UND STRATEGISCHER FOKUS

4.1 Legen Sie präzise Marketingziele fest?

Was sind sie?

4.2 Auf eine Skala von eins bis fünf, wie wichtig sind die folgenden Ziele für Ihre Firma? (1 = überhaupt nicht wichtig; 5 = sehr wichtig)

Wachstum durch neue Märkte	1	2	3	4	5
Wachstum durch neue Produkte	1	2	3	4	5
Höherer Marktanteil	1	2	3	4	5
Produktivitäts-verbesserungen	1	2	3	4	5
kurzfristige Gewinne	1	2	3	4	5
Einen Rückgang unseres Marktanteils zu verhindern	1	2	3	4	5
Überleben	1	2	3	4	5
Anderes (bitte erklären Sie)	1	2	3	4	5

4.3 Inwieweit beschreiben die folgenden Standpunkte die Philosophie Ihres Unternehmens? Bitte einordnen Sie die Ziele (1 = am Wichtigsten)

Unsere Leistung wird davon bestimmt, Qualitätsprodukte zum bestmöglichen Preis herzustellen	1	2	3	4	5
Unsere Leistung hängt von der Wirksamkeit ab, mit der wir unsere Produkte auf den Markt bringen und verkaufen	1	2	3	4	5
Die Leistung ist davon abhängig, verändernde Kundenwünsche festzustellen, damit wir die Kunden besser bedienen können als die Konkurrenz	1	2	3	4	5
Unser Erfolg ist damit verbunden, die Vermögen und Mittel der Firma effektiv zu benutzen, um Gewinne zu optimieren	1	2	3	4	5

5. PRODUKT- UND MARKTFAKTOREN

5.1 Inwieweit beschreiben die folgenden Standpunkte die Faktoren, die den Erfolg in der Industrie bestimmen? (1 = überhaupt nicht; 5 = genau)

Wir identifizieren erfolgreiche Sektoren in der Industrie, und streben darauf, uns einen strategischen Vorteil über die Konkurrenz zu verschaffen	1	2	3	4	5
Wir stellen Produkte her, die nicht mit Anderen konkurrieren	1	2	3	4	5
Wir entwickeln neue Produkte und Prozesse	1	2	3	4	5
Wir eröffnen neue Märkte	1	2	3	4	5
Qualität und Zuverlässigkeit ist für unsere Firma ein wichtiger Wettbewerbsvorteil	1	2	3	4	5

5.2 Wie wichtig ist es, daß Ihre Firma ein gutes kurfristiges finanzielles Ergebnis erzielt?

überhaupt nicht wichtig — sehr wichtig

1 2 3 4 5

5.3 Wie wichtig sind niedrige Preise für die Leistung Ihrer Firma?

überhaupt nicht wichtig — sehr wichtig

1 2 3 4 5

5.4 Im Vergleich zu Ihren Konkurrenten sind Ihre Preise

viel niedriger — viel höher

1 2 3 4 5

5.5 Sind Ihre Kunden der Meinung, daß Ihre Produkte

Grundbedürfnisse treffen — erstklassige Leistung bieten

1 2 3 4 5

6. KUNDENPHILOSOPHIE

6.1 Inwieweit beschreiben die folgenden Thesen Ihren Ansatz zu Ihren wichtigsten Märkten? (1 = überhaupt nicht; 5 = genau)

Wir haben Zielgruppen-märkte klar festgestellt	1	2	3	4	5
Wir stellen unsere Produkte auf die bestimmten Bedürfnisse unserer Kunden ab	1	2	3	4	5
Wir teilen unsere Märkte nicht effektiv auf	1	2	3	4	5
Wir verkaufen unsere Produkte zum festgesetzten Preis an alle	1	2	3	4	5

6.2 Wie wichtig sind Ihrer Ansicht nach die folgende Faktoren für Ihre Kunden? (1 = überhaupt nicht wichtig; 5 = sehr wichtig)

niedrige Preise	1	2	3	4	5
Produktqualität	1	2	3	4	5
Kundendienst	1	2	3	4	5
Verfügbarkeit der Produkte	1	2	3	4	5

6.3 Wie wichtig ist es für Ihre Firma, Kontakt mit Kunden zu haben?

überhaupt nicht wichtig — sehr wichtig

1 2 3 4 5

6.4 Wie behalten Sie Verbindungen mit Ihren Kunden?

auf einer kurzfristige Grundlage — auf einer langfristige Grundlage

1 2 3 4 5

6.5 Wie stellen Sie Verbindungen mit Ihren Kunden her?

6.6 Wie wichtig ist es Ihrer Firma Kunden zufriedenzustellen?

überhaupt nicht wichtig — sehr wichtig

1 2 3 4 5

6.7 Schätzen Sie die Zufriedenstellung der Kunden ab?

ja ☐ nein ☐

Wie?

6.8 Wie wichtig ist Kundendienst für Ihre Firma?

überhaupt nicht wichtig — sehr wichtig

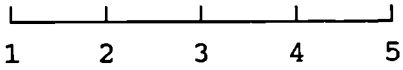
1 2 3 4 5

6.9 Was bedeutet Kundendienst zu Ihrer Firma?

6.10 Wie wird Kundendienst in Ihrer Firma behandelt?

7. DIE WETTBEWERBSLAGE

7.1 Wie würden Sie die Konkurrenz in Ihren Märkten beschreiben?

sehr schwach  sehr aggressiv

1 2 3 4 5

7.2 Ist Ihr Hauptkonkurrent

deutsch ☐

englisch ☐

japanisch ☐

anderes ☐

erklären Sie bitte

7.3 Welche Firmen sind Ihre Hauptkonkurrenten?

1.

2.

3.

4.

5.

7.4 Was ist die Strategie Ihres Hauptkonkurrenten? Bitte einordnen Sie die Strategien. (1 = am Wichtigsten)

niedrige Preise ☐

Produktqualität ☐

Produktinnovation ☐

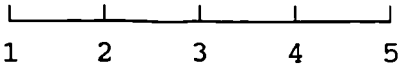
langfristige Marktbeherrschung ☐

kurzfristige Gewinne ☐

Anderes (bitte erklären Sie) ☐

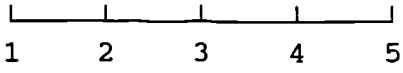
7.5 Mit Hinsicht auf die folgenden Faktoren bitte vergleichen Sie Ihre Leistung mit der Ihrer Konkurrenten.

Produktqualität

viel schlechter  viel besser

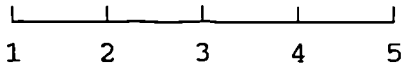
1 2 3 4 5

Produktsortiment

viel kleiner  viel größer

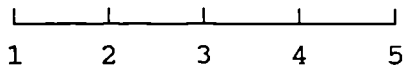
1 2 3 4 5

Produktdesign

viel schlechter  viel besser

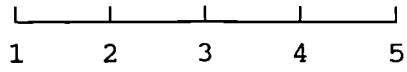
1 2 3 4 5

Produktleistung

viel schlechter  viel besser

1 2 3 4 5

Kundendienst

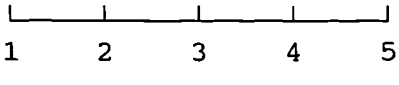
viel schlechter  viel besser

1 2 3 4 5

7.6 Wie oft bringen Sie Informationen über den Folgenden auf den neuesten Stand?

Marktanteil	Konkurrenten		Kunden
täglich	☐	☐	☐
wöchentlich	☐	☐	☐
monatlich	☐	☐	☐
dreimonatlich	☐	☐	☐
jährlich	☐	☐	☐
anderes	☐	☐	☐

7.7 Wie bekommt Management Informationen über den Markt?

als schriftliche Berichte  mündlich

1 2 3 4 5

8. WETTBEWERBSVORTEILE

8.1 Was sind Ihre wichtigsten Wettbewerbsvorteile? Bitte einordnen Sie die folgenden Faktoren (1 = am Wichtigsten)

hervorragende Produktleistung ☐

niedrige Preise ☐

besserer Kundendienst ☐

beseres Image ☐

bessere Verfügbarkeit der Produkte ☐

Anderes (bitte erklären Sie) ☐

9. PRODUKTENTWICKLUNG

9.1 Inwieweit beschreiben die folgenden Thesen Ihre Firma? (1 = überhaupt nicht; 5 = genau)

Flexible Herstellung mit mittlere Produktionskapatität	1	2	3	4	5
Massenherstellung	1	2	3	4	5
Wir haben eine starke vorgeschrittene Forschungsfähigkeit	1	2	3	4	5
Wir sind im Forschungs- und Entwicklungsbereich flexibel	1	2	3	4	5
Wir sind im Bereich Produktdesign sehr stark	1	2	3	4	5
Unsere Stärke bezieht sich auf Kostensenkungen	1	2	3	4	5

9.2 Wieviel hat Ihre Firma in den letzten fünf Jahren in Forschung und Entwicklung investiert?

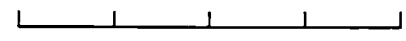
_____ als Anteil vom Umsatz

9.3 Inwieweit wird der Kunde an dem Entwicklungsprozeß beteiligt?

überhaupt nicht ⊢——|——|——|——⊣ sehr oft
1 2 3 4 5

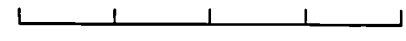
9.4 Wie ist der Kunde an dem Entwicklungsprozeß beteiligt ?

9.5 Im Vergleich zu Ihren Konkurrenten experimentiert Ihre Firma mit neuen Produkten

viel weniger  viel mehr

1 2 3 4 5

9.6 Ihres Erachtens nach hat Ihre Firma eine schlechte oder gute Toleranz gegenüber Fehlern bez. Fehlschlägen?

sehr schlecht  sehr gut

1 2 3 4 5

10. ORGANISATIONSMERKMALE

STRUKTUR

10.1 Wie ist Ihre Organisation aufgeteilt?

10.2 Welcher Anteil Ihrer Mitarbeiter ist in der Verwaltung tätig?

10.3 Hat Ihre Firma eine Marketingabteilung?

Wenn JA

Wieviele Mitarbeiter gibt es in der Marketingabteilung?

Was ist die Rolle der Marketingabteilung?

Wenn NEIN

Wer ist für die Verkaufsabteilung verantwortlich?

Wer ist für Produkt- und Marktentscheidungen verantwortlich?

Wer ist für Marktforschung verantwortlich?

Wer ist für Werbung und Werbematerial verantwortlich?

Wer ist für Kundendienst verantwortlich?

10.4 Wieviel gibt Ihre Firma jährlich für Werbung und Werbematerial aus?

_____ als Anteil vom Umsatz

10.5 Wie würden Sie die Organisation Ihrer Firma beschreiben?

hierarchisch und fest	1 2 3 4 5	formlos
Informationsfluß von Top Down	1 2 3 4 5	vermischter Informationsfluß
Formeller Informationsfluß	1 2 3 4 5	informeller Informationsfluß

10.6 Inwieweit beschreiben die folgenden Thesen Ihre Firma? (1 = überhaupt nicht; 5 = genau)

Wir sind flexibel	1	2	3	4	5
Wir sind risikobereit	1	2	3	4	5
Wir betonen Leistungskraft und Kontrolle	1	2	3	4	5
Alle Abteilungen arbeiten zusammen, um den Erfolg der Firma zu sichern	1	2	3	4	5

PERSONAL

11.1 Wie würden Sie das Management in Ihrer Firma beschreiben

Leute, die vom ausserhalb der rekrutiert sind	1 2 3 4 5	Leute, die vom Innen befördert werden

11.2 Ihrer Meinung nach beweist die Betriebsleitung eine Fähigkeit sich schnell und effektiv an Marktveränderungen anzupassen?

überhaupt nicht	1 2 3 4 5	eine sehr gute Fähigkeit

11.3 Was ist Ihr akademischer Werdegang?

Qualifikationen	Fachgebiet

11.4 Was für Fremdsprachefähigkeiten haben Ihre Managers?

Manager	Sprache	Geschicklichkeit
_____	_____	_____
_____	_____	_____
_____	_____	_____

11.5 Inwieweit sind Fremdsprachenkenntnisse für Ihre Firma wichtig?

überhaupt nicht wichtig — 1 2 3 4 5 — sehr wichtig

11.6 Haben Sie oder Ihre Managers je in anderen EG-Ländern gearbeitet?

PERSONALEIGENSCHAFTEN

12.1 Ihrer Meinung nach was sind die kennzeichenden Eigenschaften bez. Fähigkeiten Ihres Managements?

12.2 Wie vergleichen sich diese Eigenschaften mit der der Konkurrenz?

viel schlechter — 1 2 3 4 5 — viel besser

12.3 Wie wichtig ist Managementausbildung Ihrer Firma?

überhaupt nicht wichtig — 1 2 3 4 5 — sehr wichtig

12.4 Ist Ihrer Firma im Bereich Managementausbildung tätig?

12.5 Inwieweit beschreiben die folgenden Standpunkte die Einstellung Ihrer Firma zur Managementausbildung? (1 = überhaupt nicht; 5 = genau)

Ausbildung am Arbeitsplatz	1	2	3	4	5
Ausbildung nur für gewisse Stellen	1	2	3	4	5
allgemeine Ausbildung	1	2	3	4	5
alle Ausbildung wird im eigenen Betrieb geführt	1	2	3	4	5
wir bilden nur aus, wenn Berufsanforderungen sich ändern	1	2	3	4	5
Manager werden Ihre ganze Karriere mit der Firma lang ausgebildet	1	2	3	4	5

12.6 Wieviele Tage im Jahr verbringt ein Manager bei der Fachbildung?

FÜHRUNGSSTIL

13.1 Inwieweit beschreiben die folgenden Thesen Ihre Firma?

Mitteilungen von der obersten Führungskraft sind formell	1 2 3 4 5	Mitteilungen sind sehr informell
Vorstandssitzungen finden selten statt	1 2 3 4 5	Vorstandssitzungen finden regelmäßig statt
der Informationsfluß zwischen Betriebsleitung und Mitarbeitern ist beschränkt	1 2 3 4 5	der Informationsfluß zwischen Betriebsleitung und Mitarbeitern ist sehr regelmäßig
Teamwork findet nie statt	1 2 3 4 5	Teamwork findet häufig statt

SYSTEME

14.1 Inwieweit beschreiben die folgenden Standpunkte die Einstellung Ihrer Firma zum Planungsprozeß? (1 = überhaupt nicht; 5 = genau)

Formelle Fünfjahrespläne	1	2	3	4	5
Mittel- und kurzfristige Pläne	1	2	3	4	5
Informelle Festlegung von Zielen	1	2	3	4	5
Keine formelle Pläne	1	2	3	4	5

14.2 Wie würden Sie Ihre Firma beschreiben?

Plannung ist am uns Wichtigsten — Aktion ist uns am Wichtigsten

1 2 3 4 5

14.3 Welche Kontrollverfahren sind Ihnen am Wichtigsten? (1 = überhaupt nicht wichtig; 5 = sehr wichtig)

Formelle Festsetzung von Zielen	1	2	3	4	5
Regelmäßige informelle Überwachung der Ziele	1	2	3	4	5
Formelle Kontrolle, um korrigierend einzugreifen	1	2	3	4	5

14.4 Ist die Kontrolle in Ihrer Firma

sehr locker — sehr streng

1 2 3 4 5

SHARED VALUES

15.1 Abgesehen von Zielen wie Marktanteil, Wirtschaftswachstum, Gewinne zu optimieren u.s.w. gibt es andere Ziele, die Ihrer Firma wichtig sind?

Wenn es mehr als eins gibt, bitte einordnen Sie die Ziele.

Ziel	Rang
1.	☐
2.	☐
3.	☐

15.2 Ist die Verständnis der Mitarbeiter gegenüber den Zielen und Strategien der Firma

sehr schlecht ⊢——|——|——|——⊣ sehr gut
1 2 3 4 5

APPENDIX F3

ADDITIONS TO SUBSIDIARY QUESTIONNAIRE

SUBSIDIARY-PARENT COMPANY RELATIONSHIP

1 Who is responsible for reporting to the parent company in Germany?

2 How frequently?

3 Method of reporting?

4 Which performance criteria are most scrutinised by the parent company in Germany?

Profitability

not at all — 1 2 3 4 5 — very much so

Costs

not at all — 1 2 3 4 5 — very much so

Sales

not at all — 1 2 3 4 5 — very much so

Market Share

not at all — 1 2 3 4 5 — very much so

Cash Flow

not at all — 1 2 3 4 5 — very much so

Other

not at all — 1 2 3 4 5 — very much so

5 Is the subsidiary responsible for making its own decisions as regards day-to-day marketing activities?

not at all responsible — 1 2 3 4 5 — sole responsibility

6 How much do the following describe the parent company's philosophy on overseas markets? (1 = not at all; 5 = exactly)

Strategies are developed primarily for the home market	1	2	3	4	5
Strategies are developed for overseas markets along the same lines as the home market but with slight modifications to meet overseas requirements	1	2	3	4	5
The company significantly modifies strategies to better meet overseas requirements	1	2	3	4	5
The company develops global strategies with no special priority for the home market	1	2	3	4	5

7 The product sold in the UK market:

is exactly the same as that marketed in Germany with no modifications	1	2	3	4	5
is modified extensively to meet specific requirements in the UK market	1	2	3	4	5
a standardized product for the world market	1	2	3	4	5

8 How well do the following statements describe your company's position as a UK subsidiary? (1 = not at all; 5 = exactly)

strategically and financially it is treated as a separate company	1	2	3	4	5
it is not treated as an independent company, but its strategy and financial performance are set and evaluated in terms of the parent company's overall objectives	1	2	3	4	5

APPENDIX G

VARIABLES USED TO ANALYSE MARKETING STRATEGIES, ORGANISATIONAL CHARACTERISTICS AND LEVEL OF MARKETING ORIENTATION

VARIABLE NAME	DESCRIPTION
<u>Strategic Objectives</u>	
GOAL1	Expansion into new markets
GOAL2	Expansion into new products
GOAL3	Increase market share
GOAL4	Improve productivity
GOAL5	Profit maximisation
GOAL6	Prevent decline of market share
GOAL7	Survival
GOAL8	Balance long- and short-term performance
SUCCESS1	Success measure
USESHARE	market share as success measure
OBJ1	Increase sales
OBJ2	Increase market share
OBJ3	Identify segments
OBJ4	Overseas expansion
OBJ5	Develop partnerships overseas
OBJ6	Develop new products
OBJ7	Identify opportunities
OBJ8	Promotional objectives
OBJ9	Satisfy customers
<u>Strategic Focus</u>	
STRAT1	Identify key areas for success
STRAT2	No direct competition
STRAT3	Develops new products
STRAT4	Opens new markets
STRAT5	Quality and reliability
APP1	Product orientation
APP2	Sales orientation
APP3	Marketing orientation
APP4	Financial orientation
PROFPERF	Importance of current profit performance
PRICPERF	Importance of low price
<u>Customer Targets</u>	
SEGMENT1	Automotive
SEGMENT2	Aerospace & defence
SEGMENT3	Component manufacturers
SEGMENT4	Tool makers
SEGMENT5	Subcontractors
SEGMENT6	Medical and optical
SEGMENT7	General engineering
TARGET1	Customer target
TARGET2	Customer target

TARGET3	Customer target
TARGET4	Customer target
SEGBASE	Base for segmenting market
PRODNEED	Needs met by products
APPCUST1	Clearly defined segments
APPCUST2	Tailor products to customer needs
APPCUST4	Sell to whole market
IMPCUST1	Low price
IMPCUST2	Quality
IMPCUST3	Service
IMPCUST4	Product availability
CUSTINFO	Update customer information
CONTACT1	Importance of customer contact
CONTACT2	How customer contact is maintained

Competitor Target

COMP	Description of competition
KEYCOMP	Nationality of key competitor
COMPSTR1	Competitors' strategy
PRODQUAL	Comparative performance Quality
PRODRANG	Comparative performance Range
PRODDES	Comparative performance Design
PRODPERF	Comparative performance performance
CUSTSUPP	Comparative performance Customer support
COMPINFO	Update competitor information
PRICE	Price comparison

Differential Advantage

COMPADV	Competitive advantage
R & D1	Advanced research capability
R & D2	Flexible and responsive
R & D3	Strong on product design
R & D4	Strong on cost reduction

Marketing Mix

AGE1	Average age of products
PRODNEED	Needs met by products
PRODQUAL	Comparative performance Quality
PRODRANG	Comparative performance Range
PRODDES	Comparative performance Design
PRODPERF	Comparative performance Performance
R & D1	Advanced research capability
R & D2	Flexible and responsive
R & D3	Strong on product design
R & D4	Strong on cost reduction
TESTPROD	Product testing comparison
INVEST	R & D investment per annum
PRICPERF	Importance of low price
PRICE	Price comparison
IMPCUST1	Low price

OSWW	World-wide operation
OSEURO	European operation

MKTDEPT	Separate marketing department
FUNCT1	Marketing services
FUNCT2	Marketing planning
FUNCT3	Market research
FUNCT4	Pricing
FUNCT5	Customer service
FUNCT6	Product planning
FUNCT7	Projects
FUNCT8	Monitoring the competition
RESPSALE	Responsible for sales
RESPPROM	Responsible for promotion
BUDGET1	Marketing budget as % of sales

Structure

STRUCT	Company structure
MKTDEPT	Separate marketing department
ORGSTR1	Fixed or ad hoc organisation
ORGSTR2	Communications in organisation
ORGSTR3	Formality of communications
ORGAN1	Emphasis on flexibility
ORGAN2	Encourages risk taking
ORGAN3	Emphasises efficiency & control
ORGAN4	Effective cooperation

Systems

PLAN1	Formal long range plans
PLAN2	Formal medium & short term plans
PLAN3	Informal goal statements
PLAN4	No formal plans
PLANACT	Action or planning oriented
CNTRL1	Formal goal assessment
CNTRL2	Informal regular assessment
CNTRL3	Formal control for corrective action
CONTROL	Degree of control

Staff and Skills

MGT	Managerial promotions
BACKGRD	Background
QUALIF	Formal qualifications
IMPLANG	Importance of foreign languages
WORKEURO	Managers worked in Europe
LANG1	Language spoken
LANG2	Language spoken
LANG3	Language spoken
SKILL1	Technical skills
SKILL2	Problem solving skills
SKILL3	Experience of the industry
SKILL4	Responding to market needs
SKILL5	Man management
SKILL6	Selling skills
SKILL7	Flexibility
SKILL8	Communications skills
SKILCOMP	Comparison of skills to rivals
IMPTRG	Importance of manager training

MGTTRAIN	Does company train managers?
MGTTRG1	On-the-job training
MGTTRG2	Training for specific functions
MGTTRG3	Broad all-round training
MGTTRG4	In-house training only
MGTTRG5	Retrain as job changes
MGTTRG6	Regular training thro'out career
DAYSTRG	Average days training a year

Style

STYLE1	Communications channels
STYLE2	Frequency of top level meetings
STYLE3	Frequency of management worker communications
STYLE4	Incidence of team-work
ORGSTR1	Fixed or ad hoc organisation
ORGSTR2	Communications in organisation
ORGSTR3	Formality of communications
ORGAN1	Emphasis on flexibility
ORGAN2	Encourages risk taking
ORGAN3	Emphasises efficiency & control
ORGAN4	Effective cooperation

Shared values

VALUE1	Job security
VALUE2	Training
VALUE3	Good working environment
VALUE4	Job satisfaction
VALUE5	Good customer relations
VALUE6	Good neighbour
VALUE7	Total quality
VALUE8	Improve company image
VALUE9	Invest in the future
VALUE10	Keep the company going
VALUE11	Lobby the government
COMMIT	Level of worker commitment

Market Focus

SEGMENT1	Automotive
SEGMENT2	Aerospace & defence
SEGMENT3	Component manufacturers
SEGMENT4	Tool makers
SEGMENT5	Subcontractors
SEGMENT6	Medical and optical
SEGMENT7	General engineering
TARGET1	Customer target
TARGET2	Customer target
TARGET3	Customer target
TARGET4	Customer target
SEGBASE	Base for segmenting market
MKTINFO	Way market info. is received

Customer Orientation

APPCUST1	Clearly defined segments
APPCUST2	Tailor products to customer needs
APPCUST4	Sell to whole market
IMPCUST1	Low price
IMPCUST2	Quality
IMPCUST3	Service
IMPCUST4	Product availability
CUSTINFO	Update customer information
CONTACT1	Importance of customer contact
CONTACT2	How customer contact is maintained
CUSTSAT	Importance of customer satisfaction
MEASSAT1	Mail surveys
MEASSAT2	Visits by snior managers
MEASSAT3	Number of call-outs
MEASSAT4	Fault mend time
MEASSAT5	We hear if they are unhappy
MEASSAT6	Repeat orders
SERVICE	Importance of customer service
CUSSER1	Training
CUSSER2	Installation
CUSSER3	Quick response
CUSSER4	Consultancy
CUSSER5	Problem solving capability
CUSSER6	Next order
CUSSER7	Spare availability
CUSSER8	Delivery
CUSSER9	Reducing downtime
HANDSER	How service is handled
EXCUSINV	Customer involvement in R & D
CUSTINV1	Product testing
CUSTINV2	At design stage
CUSTINV3	Simultaneous engineering
CUSTINV4	Adapt products to customer needs
CUSTSUPP	Comparative performance Customer support

Coordinated Marketing

APP1	Product orientation
APP2	Sales orientation
APP3	Marketing orientation
APP4	Financial orientation
MGTREACT	Capacity to reast to change
STYLE4	Incidence of team-work
ORGAN4	Effective cooperation

Profitability

SUCCESS1	Success measure
PROFITS	Profitability level
GOAL5	Profit maximisation
PROFPERF	Importance of current profit performance

Competitor Orientation

COMP	Description of competition
KEYCOMP	Nationality of key competitor
COMPSTR1	Competitors' strategy
PRODQUAL	Comparative performance Quality
PRODRANG	Comparative performance Range
PRODDES	Comparative performance Design
PRODPERF	Comparative performance Performance
CUSTSUPP	Comparative performance Customer support
COMPINFO	Update competitor information
COMPADV	Competitive advantage
TESTPROD	Comparison of product testing

Innovation

R & D1	Advanced research capability
R & D2	Flexible and responsive
R & D3	Strong on product design
R & D4	Strong on cost reduction
INVEST	R & D investment per annum
TESTPROD	Comparison of product testing

Long term Business Perspective

GOAL1	Expansion into new markets
GOAL2	Expansion into new products
GOAL3	Increase market share
GOAL4	Improve productivity
GOAL5	Profit maximisation
GOAL6	Prevent decline of market share
GOAL7	Survival
GOAL8	Balance long and short term performance

Marketing as a Business Philosophy

APP1	Product orientation
APP2	Sales orientation
APP3	Marketing orientation
APP4	Financial orientation

APPENDIX H

MEANS OF VARIABLES USED TO DERIVE SIX CLUSTER SOLUTION

Variable	Cluster						
	1	2	3	4	5	6	Sig
GOAL1	4.78	3.88	4.00	4.43	3.17	1.00	.000
GOAL3	5.00	2.75	1.71	4.28	4.67	3.00	.000
GOAL4	3.67	4.62	4.71	3.86	3.67	3.00	.064
GOAL5	2.11	3.12	3.28	4.86	2.00	5.00	.000
GOAL6	2.56	2.25	4.14	3.57	4.50	4.00	.001
GOAL7	2.00	2.12	3.71	4.43	5.00	4.67	.000
GOAL8	4.89	4.62	4.28	3.86	4.33	2.67	.004
STRAT2	1.78	1.25	3.28	2.57	3.83	1.00	.001
STRAT3	4.78	1.62	3.86	4.28	3.17	1.00	.000
STRAT4	3.89	2.12	3.14	3.28	3.33	1.67	.022
STRAT5	5.00	4.75	4.86	5.00	4.33	5.00	.050

GOAL2 and STRAT1 were not significant

APPENDIX I

SIX CLUSTER SOLUTION: MEANS OF VARIABLES USED TO PROFILE THE CLUSTERS

Variable	Cluster						
	1	2	3	4	5	6	Sig
USESHARE	0.89	0.25	0.28	0.28	0.50	0.33	.068
CONTACT1	5.00	4.12	4.71	5.00	5.00	5.00	.075
PRODDES	3.67	3.12	4.00	4.00	3.33	4.33	.086
PRODPERF	3.22	3.12	4.14	3.28	3.67	4.00	.028
PRICE	3.56	3.75	3.29	3.14	3.83	4.67	.147
R & D1	4.14	2.00	2.50	4.25	2.00	1.00	.009
R & D3	4.43	3.50	4.67	4.50	3.75	1.00	.054
EXCUSINV	3.57	2.83	4.50	4.25	3.50	1.00	.107
TESTPROD	3.86	3.00	3.33	3.50	2.50	1.00	.126
MKTINFO	1.33	3.43	2.43	2.86	2.50	3.67	.081
MKTDEPT	0.67	0.38	0.43	0.43	0.00	0.00	.115
MGTTRG2	3.12	4.43	3.43	2.43	1.67	3.67	.005
STYLE1	3.11	3.50	4.43	3.86	2.83	5.00	.069
STYLE2	4.22	3.25	4.28	4.28	2.33	2.00	.006
ORGAN4	4.44	4.75	3.86	3.57	3.50	3.67	.088
CNTRL3	4.44	4.14	2.86	3.14	3.33	2.00	.054

In order to analyse ordinal data, those variables measured on ordinal scales have had to be transformed into dichotomous variables. Below is a list of these variables and their means.

Variable	Cluster						
	1	2	3	4	5	6	Sig
OBJ2	0.44	0.00	0.00	0.00	0.17	0.00	.026
PROFITS	0.00	0.00	0.00	0.00	0.00	0.67	.000
SEGBASE	0.67	0.25	0.14	0.00	0.00	0.00	.005
KEYCOM1	0.89	0.62	0.14	0.43	0.17	0.33	.020
KEYCOM2	0.00	0.00	0.43	0.14	0.33	0.00	.020
COMPINFO	0.22	0.50	0.57	0.00	0.33	0.00	.129
COMPSTR1	0.22	0.88	0.28	0.28	0.50	0.67	.074
AGE	0.00	0.00	0.43	0.28	0.00	0.00	.039
MEASSAT1	0.55	0.00	0.28	0.28	0.17	0.00	.134
MEASSAT6	0.00	0.12	0.00	0.43	0.00	0.00	.039
HANDSER1	0.78	0.50	0.14	0.28	0.33	0.00	.067
OSEURO1	0.00	0.50	0.28	0.14	0.00	0.33	.106
STRUCT1	0.44	0.00	0.00	0.14	0.00	0.00	.029

APPENDIX J

VALIDATING THE CLUSTER SOLUTIONS

A discussion of alternative validation methods has already been completed in Chapter Five. It was noted that a split sample approach is not appropriate for this application given the small sample sizes. Therefore, two alternative methods are considered here. Firstly the variables not used to derive the cluster solution were analysed in order to ascertain whether significant differences existed between the clusters. This was found to be the case and a full discussion of the interpretation of these variables is presented in Chapter Seven. However, it was also important to determine the stability of the sample and the variables selected for the cluster analysis. This was conducted by using the single linkage clustering technique as this method is particularly sensitive to outlying cases.

The agglomeration schedules for both the Ward and the single linkage methods are presented in Tables 1 and 2 respectively. They show that the single linkage analysis, with its inherent instability, produces an agglomeration schedule not entirely dissimilar from that produced by the Ward method. This shows robustness in both the sample and the variables selected for the analysis. Given the high degree of similarity between these two analyses a third method, average linkage method, was also used as a further validation test. The agglomeration schedule for this

analysis shown in Table 3 clearly supports the view expressed above that the cluster solution is stable.

Table 1 Agglomeration Schedule using Ward Method

Stage	Clusters Combined		Coefficient	Stage Cluster 1st appears		Next
	Cluster1	Cluster2		Cluster1	Cluster2	Stage
1	12	37	2.499999	0	0	24
2	15	18	4.999998	0	0	5
3	5	17	7.999997	0	0	5
4	2	8	11.499996	0	0	22
5	5	15	15.749990	3	2	13
6	20	32	20.249985	0	0	19
7	16	30	24.749969	0	0	18
8	1	19	29.249954	0	0	13
9	9	24	34.249954	0	0	32
10	14	22	41.249939	0	0	21
11	6	11	48.749924	0	0	17
12	3	7	56.249908	0	0	17
13	1	5	63.999893	8	5	15
14	27	38	72.499878	0	0	19
15	1	29	81.928436	13	0	22
16	28	39	91.928421	0	0	18
17	3	6	104.428406	12	11	28
18	16	28	117.178391	7	16	26
19	20	27	130.178375	6	14	33
20	21	23	143.178360	0	0	29
21	13	14	156.845016	0	10	25
22	1	2	171.916412	15	4	38
23	36	40	187.416397	0	0	30
24	12	26	203.583054	1	0	33
25	13	25	219.916367	21	0	30
26	16	31	236.266357	18	0	34
27	4	34	253.266342	0	0	28
28	3	4	272.432861	17	27	32
29	21	33	292.099365	20	0	37
30	13	36	313.099121	25	23	36
31	10	35	334.098877	0	0	34
32	3	9	362.432129	28	9	37
33	12	20	390.908203	24	19	35
34	10	16	421.736572	31	26	35
35	10	12	462.879150	34	33	36
36	10	13	513.314453	35	30	38
37	3	21	575.647461	32	29	39
38	1	10	680.962402	22	36	39
39	1	3	814.071289	38	37	0

Table 2 Agglomeration Schedule using Single Linkage Method

Stage	Clusters Combined		Coefficient	Stage Cluster 1st appears		Next
	Cluster1	Cluster2		Cluster1	Cluster2	Stage
1	12	37	4.999999	0	0	27
2	15	18	4.999999	0	0	3
3	5	15	4.999999	0	2	4
4	5	17	5.999999	3	0	5
5	5	8	5.999999	4	0	6
6	5	19	6.999999	5	0	7
7	2	5	6.999999	0	6	8
8	1	2	8.000000	0	7	12
9	20	32	8.999999	0	0	15
10	16	30	8.999999	0	0	14
11	9	24	10.000000	0	0	13
12	1	29	10.999999	8	0	17
13	6	9	10.999999	0	11	22
14	14	16	11.999999	0	10	16
15	20	27	13.999999	9	0	17
16	14	22	13.999999	14	0	18
17	1	20	13.999999	12	15	18
18	1	14	13.999999	17	16	19
19	1	39	14.999999	18	0	20
20	1	28	14.999999	19	0	21
21	1	25	14.999999	20	0	24
22	6	11	14.999999	13	0	24
23	3	7	14.999999	0	0	25
24	1	6	14.999999	21	22	25
25	1	3	15.999999	24	23	26
26	1	38	16.999985	25	0	27
27	1	12	16.999985	26	1	28
28	1	34	17.999985	27	0	29
29	1	36	19.999985	28	0	30
30	1	13	20.999985	29	0	31
31	1	21	21.999985	30	0	32
32	1	40	22.999985	31	0	33
33	1	31	22.999985	32	0	34
34	1	26	22.999985	33	0	35
35	1	4	22.999985	34	0	36
36	1	23	25.999985	35	0	37
37	1	10	26.999985	36	0	38
38	1	33	27.999985	37	0	39
39	1	35	30.999985	38	0	0

Table 3 Agglomeration Schedule using Average Linkage Method

Stage	Clusters Combined		Coefficient	Stage Cluster 1st appears		Next
	Cluster1	Cluster2		Cluster1	Cluster2	Stage
1	12	37	4.999999	0	0	23
2	15	18	4.999999	0	0	4
3	5	17	5.999999	0	0	4
4	5	15	6.999996	3	2	6
5	2	8	6.999999	0	0	12
6	5	19	8.749992	4	0	10
7	20	32	8.999999	0	0	18
8	16	30	8.999999	0	0	17
9	9	24	10.000000	0	0	22
10	1	5	11.599987	0	6	12
11	14	22	13.999999	0	0	21
12	1	2	14.333323	10	5	16
13	6	11	14.999999	0	0	19
14	3	7	14.999999	0	0	19
15	27	38	16.999985	0	0	18
16	1	29	17.374985	12	0	29
17	16	39	18.499985	8	0	20
18	20	27	19.499985	7	15	25
19	3	6	19.999985	14	13	22
20	16	28	20.999985	17	0	25
21	13	14	23.999985	0	11	26
22	3	9	25.249985	19	9	27
23	12	26	25.499985	1	0	28
24	21	23	25.999985	0	0	33
25	16	20	26.874969	20	18	28
26	13	36	28.333313	21	0	30
27	3	4	28.666641	22	0	37
28	12	16	28.708313	23	25	32
29	1	34	29.111084	16	0	34
30	13	25	29.249985	26	0	32
31	31	40	32.000000	0	0	35
32	12	13	34.454498	28	30	34
33	21	33	35.999985	24	0	39
34	1	12	38.724915	29	32	36
35	10	31	40.999985	0	31	36
36	1	10	42.807632	34	35	37
37	1	3	45.812714	36	27	38
38	1	35	53.277710	37	0	39
39	1	21	61.666489	38	33	0

APPENDIX K

DISCRIMINANT ANALYSIS
VALIDATION AND INTERPRETATION OF THE FUNCTION

1 Validation of the Discriminant Function

There is a likelihood of bias in the results of the discriminant analysis because the same cases have been used to derive the discriminant function as those used to assess its predictive accuracy. The findings of this analysis were, therefore, validated using the U-Method discussed in Chapter five. This allows for an assessment of the predictive accuracy of the derived discriminant function. The significance of each function and the percentage of cases correctly classified were observed across the 29 analyses performed as part of the validation process. Each of the 29 functions was highly significant and the resultant median percentage of cases correctly classified was 96.43% (see Table 1). This was only 0.12 of a percentage point below that achieved in the original analysis. This means that the derived function is indeed a good discriminator between the British and German companies.

The classification rates for the subsidiaries observed in the initial analysis were also validated by counting up the number of misclassifications over the 29 analyses. A misclassification rate of 6.58% was recorded which is a further indication that the derived function has a high predictive accuracy.

Table 1 Validation of Discriminant Analysis

Analysis	Significance of function	% cases correct classified
1	.000	96.43
2	.000	96.43
3	.000	96.43
4	.000	100.00
5	.000	100.00
6	.000	100.00
7	.000	100.00
8	.000	100.00
9	.000	100.00
10	.000	96.43
11	.000	96.43
12	.000	100.00
13	.000	100.00
14	.000	96.43
15	.000	96.43
16	.000	100.00
17	.000	96.43
18	.000	96.43
19	.000	96.43
20	.000	100.00
21	.000	96.43
22	.000	96.43
23	.000	89.29
24	.000	100.00
25	.000	96.43
26	.000	96.43
27	.000	100.00
28	.000	96.43
29	.000	96.43

2 Interpreting the Discriminant Function

The application of discriminant analysis in this context also allows a further examination of the key differences between the British and German companies and acts as a form of validation process for the chi-square tests.

The function discriminating between British and German companies was interpreted by considering the within-groups structure coefficients. These coefficients enabled the

assessment of the relative importance of individual variables to the overall function. Because a step-wise entry method was used only variables which were significant were included in the function. From Table 2 it can be seen that GOAL7 discriminates the best between the British and German companies. However, an examination of the means of all the significant variables for the two sets of companies allows a profile of the differences between British and German companies to be built.

Table 2 Structure Coefficients for the British and German Companies

Variable	Coefficient	Rank
GOAL1	.000	11
GOAL3	-.038	8
GOAL5	.161	4
GOAL7	.307	1
GOAL8	-.168	2
STRAT1	.027	9
STRAT2	.165	3
STRAT3	-.079	7
ORGSTR2	-.108	6
ORGSTR3	.116	5
ORGAN3	.002	10

Interpreting the means (see Table 6.5), it can be seen that the best discriminator between the British and German companies is the importance attached to survival as a company goal. To the Germans it is a relatively unimportant goal, but for the British manufacturers it is a very real concern. This clearly supports the findings of the chi-square tests in Chapter six which highlighted the emphasis placed, by British managers, on short-term goals not only in terms of survival but also the desire to achieve high short-

term returns. It is not surprising, therefore, that the importance of profit maximisation shows up as being a good discriminator between the two sets of companies.

The discriminant analysis further highlights the higher level of importance given by the German participating organisations to longer-term aims and objectives evidenced in the greater priority given to market share objectives and finding a good balance between the need for a good short-term performance to help build a long-term business. The goal of expansion into new markets showed up as discriminating between the British and German companies, although an examination of the group means found no difference. This discriminant analysis, therefore, supports the findings reported in Chapter six.

The strategies pursued by the participating companies also emerged as good discriminators. This analysis confirms the earlier finding that the German manufacturers are more active in developing new products whilst the British companies claim to produce products with no direct competitors (for a full discussion of the implications of this result see Chapter six). The ability to identify key areas for success in the industry is a less effective discriminator, however, it is interesting that it is a strategy that the British claim to pursue more than the Germans which would suggest that the British companies have a greater market focus than their German competitors - a finding which is contrary to those discussed in Chapter six.

Although strategies discriminate less well between companies in the two countries the results of the discriminant analysis again confirm the findings of the chi-square tests that the Germans actively pursue strategies based on product quality and reliability and that a significant number of British companies claim to sell machine tool not in direct competition with others.

The final set of variables used in the discriminant analysis were those relating to the company's organisation characteristics. Here there were two notable difference between the British and German companies. Confirming the results of the chi-square test the British companies were found to be very informal in their approach to business whereas the German participants adopted a more formal approach. In some instances the differences in the means (see Table 6.5) was fairly small, however, it is interesting to note that in most cases the standard deviations of the German group are smaller than those of the British group showing a greater consistency of within-group responses for the German sample.

APPENDIX L

SUCCESS RATING QUESTIONNAIRE

As part of a valuable research project into the marketing strategies of British and German machine tool manufacturers it is useful to establish whether there are any major differences between successful and less successful companies. Taking the definition of success given below could you please rate the companies listed.

"Successful companies are those that, in the past five years:

1. consistently achieved annual sales and profit growth rates above the industry average

2. consistently outperformed their major competitors in terms of market share"

	very unsuccessful				very successful	don't know
Alfing Kessler	1	2	3	4	5	0
Beaver Machine Tools	1	2	3	4	5	0
Birkett Cutmaster	1	2	3	4	5	0
Bridgport	1	2	3	4	5	0
Bryant Symons	1	2	3	4	5	0
BSA Machine Tools	1	2	3	4	5	0
Cardinal Broach	1	2	3	4	5	0
Eisele	1	2	3	4	5	0
Emag	1	2	3	4	5	0
Ex-cell-O	1	2	3	4	5	0
Excel Machine Tool	1	2	3	4	5	0
FMT	1	2	3	4	5	0
Gildemeister	1	2	3	4	5	0
Häberle	1	2	3	4	5	0
Heckler & Koch	1	2	3	4	5	0
Heller	1	2	3	4	5	0
Hermele	1	2	3	4	5	0

	very unsuccessful				very successful	don't know
Hey Machine Tool	1	2	3	4	5	0
Jones & Shipman	1	2	3	4	5	0
Klingelnberg	1	2	3	4	5	0
Leslie Hartridge	1	2	3	4	5	0
Maho	1	2	3	4	5	0
Matrix Churchill	1	2	3	4	5	0
P G Technology	1	2	3	4	5	0
SHW	1	2	3	4	5	0
Simon	1	2	3	4	5	0
SPW	1	2	3	4	5	0
Systematic Drillhead	1	2	3	4	5	0
TBT	1	2	3	4	5	0
Trumpf	1	2	3	4	5	0
Walter	1	2	3	4	5	0
Wickman Bennett	1	2	3	4	5	0
Wyvern Machine Tool	1	2	3	4	5	0

Thank you very much for your assistance.